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ABSTRACT

National estimates of activities of science and engineering faculty in universities and four-year colleges for 1978-1979 are examined, based on a National Science Foundation survey of faculty members in 20 science and engineering (S/E) fields. Individual respondents provided information for only one 7-day period; however, the survey sample was spread over an entire year. Findings include the following: over the survey period, full-time S/E faculty in universities devoted an average of 48 hours per week to professional activities, while faculty in four-year colleges averaged about 43 hours; university faculty spend about one-third of their professional time (16 hours per week) in research, and federally-sponsored time accounted for about 9 of these hours; four-year college faculty averaged about 5 hours per week in research, reflecting in part a low level of federal support at this level; overall, about 3 out of 10 research hours were not supported by federal or other sponsors, including the faculty member's own institution; four-year college faculty spent about 22 hours per week in instructional activities, roughly 7 hours more than their university counterparts; authoring publications for compensation consumed one-half of the approximately 4 hours spent per week by university faculty in earning outside income, while consulting accounted for another one-third of such activities; and although the average work week was about 15 hours shorter in the summer months, the average weekly number of hours spent in research varied little by season. Information is also provided by academic discipline, and comparisons are made regarding sponsored and unsponsored research. Detailed statistical tables, technical notes, and the questionnaire are included. (SW)

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activities of science and engineering faculty in universities and 4-year colleges: 1978/79

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foreword

Universities and colleges play a key role in the technical progress of this country. These institutions train tomorrow's scientists and engineers and carry out most of the Nation's basic research. Since faculty are the primary participants in these functions, the amount of time they spend on teaching, research, and related activities largely determines the nature of the academic science and engineering (S/E) enterprise.

Although extensive data are available for some faculty activities, there are no national averages for all activities of S/E faculty in universities and 4-year colleges. Consequently, the National Science Foundation (NSF) surveyed a sample of faculty to determine the number of hours allocated to major pursuits. Some of the principal results from this survey are previously unavailable data on the extent of nonsponsored research and outside income-producing activities, such as consulting and preparing publications intended for sale. Furthermore, the survey produced the first complete description of faculty professional activities over the entire year.

The study involved faculty members in 20 S/E fields. Individual respondents provided information for only one 7-day period; however, the survey sample was spread over an entire year, November 1978 to October 1979.

Because the study was designed to provide only comprehensive national estimates, the sample was not large enough to permit development of activity profiles for individual academic institutions. In addition, steps were taken to ensure the confidentiality of the information provided by individuals. NSF is grateful to the many respondents to this survey, who, realizing the importance of the study, maintained their diaries so meticulously.

Charles E. Falk
Director, Division of Science
Resources Studies
Directorate for Scientific, Technological,
and International Affairs

December 1981

note on survey methods

This report presents the results of a survey of time spent by full-time S/E faculty on professional activities over a 52-week year beginning November 1, 1978. The nationwide survey sample was designed to be statistically representative of faculty working full time in 20 fields of science and engineering. Each surveyed person was asked to complete a log-diary for seven consecutive days. The responses were weighted to represent all full-time S/E faculty employed in bachelor's-, master's-, and doctor's-degree level institutions.

The activities reported here are for faculty with the rank of assistant professor or higher. For purposes of presentation, data for the 20 fields have been summarized into 7 major field groups, but the appendix tables provide information for all 20 fields.

acknowledgments

This report was prepared in the Supply and Education Analysis Group by Larry W. Lacy under the direction of Charles H. Dickens, Senior Study Director. Major contributions in the area of data preparation were made by Felix H. I. Lindsay, Associate Study Director, and by John Creager of Information and Communication Applications, Inc., and Russell Jones of Group Operations. Advice on statistical procedures was provided by Robert Serfling of the Department of Mathematical Sciences, The Johns Hopkins University, and Joseph Steinberg of Survey Design. Alan Fechter, Head of the Scientific and Technical Personnel Studies Section, and Charles E. Falk, Director, Division of Science Resources Studies, provided general guidance and review.

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highlights

- Over the full survey period, full-time S/E faculty in universities devoted an average of 48 hours per week to professional activities. Faculty in 4-year colleges averaged about 43 hours.
- University faculty spent about one-third of their professional time (16 hours per week) in research. Federally sponsored time accounted for about 9 of these hours.
- University faculty time in research varied significantly by field. Environmental, life, and physical scientists averaged about 20 hours per week (about two-fifths of all work hours) as compared to about one-half as much for psychologists, mathematical/computer scientists, and social scientists. Engineers fell midway between the two groups.
- Four-year college faculty averaged only about 5 hours per week in research, reflecting in part the low level of Federal support at this level. About three-fifths of 4-year college research hours were unsponsored as compared to one-fourth in universities.
- Overall, about 3 out of 10 research hours were not supported by Federal or other sponsors, including the faculty member's own institution. In psychology, the mathematical/computer sciences, and the social sciences, nonsponsored research was over one-half the total.
- The survey results indicate that Federal funds are effective in increasing the amount of research conducted and do not merely displace other funding sources. One additional hour of federally sponsored research was found to be associated with a drop of only about 5 minutes in research without Federal support.
- Four-year college faculty spent about 22 hours per week in instructional activities, roughly 7 hours more than their university counterparts. Faculty in all institutions combined devoted about twice as much time in preparing for class, grading papers, and similar activities, as with students in classrooms and laboratories.
- Authoring publications for compensation consumed one-half of the approximately 4 hours spent per week by university faculty in earning outside income. Consulting accounted for another one-third of such activities. University engineers allocated about 6 hours per week to earning outside income, about twice the average for all fields combined.
- Although the average workweek was about 15 hours shorter in the summer months—reflecting time on vacation—the average weekly number of hours spent in research varied little by season. Most of the overall hourly decline was in instructional activity which fell by about one-half during the summer.

key differences in activity profiles by type of institution

Traditionally, universities have conducted most of the basic research in the United States and have received the bulk of Federal academic research support. In contrast, the burden of S/E instruction has been much more evenly divided between these institutions and 4-year colleges.[1] This difference in institutional missions explains in large part why the professional activity profiles of university S/E faculty differ from those of their 4-year college colleagues. Greater research effort contributes to the longer workweek of university faculty. More research may also account indirectly for more extensive participation in professional organizations and refereeing of scholarly journals and, possibly, for the greater time university faculty spend in writing for remuneration.

Over the course of an entire year, full-time university S/E faculty devote an average of almost 16 hours per week to research, triple the time of 4-year college faculty (table 1). Viewed from another perspective, university scientists and

[1] In the main body of this report, but not in the appendix tables, the terms "universities" and "4-year colleges" are used in lieu of the more precise "doctorate-granting" and "nondoctorate-granting institutions."

Table 1. Professional activity of science/engineering faculty by type of institution: November 1978—October 1979
(Hours per week)

Activity	All institutions N=118,540		Universities N=66,950		4-year colleges N=51,590		Public institutions N=84,400		Private institutions N=34,140	
	Mean	Percent	Mean	Percent	Mean	Percent	Mean	Percent	Mean	Percent
All activities	45.8	100	48.2	100	42.7	100	47.1	100	42.6	100
Total instructional	17.8	39	14.9	31	21.6	51	17.6	37	18.4	43
Total research	11.0	24	15.6	32	5.0	12	11.9	25	8.7	20
(federally sponsored research)	(5.7)	(12)	(9.4)	(20)	(.9)	(2)	(6.2)	(13)	(4.4)	(10)
Total public service, administration, and miscellaneous professional activities	8.6	19	9.5	20	7.4	17	8.9	19	7.8	18
Total outside income-producing activity	3.7	8	4.2	9	3.1	7	3.8	8	3.3	8
Continuing education and professional enrichment	4.7	10	4.1	8	5.5	13	4.8	10	4.4	10

NOTE: "N" refers to weighted estimates of the population of full-time faculty in ranks of full, associate, and assistant professor. Other ranks are excluded.

SOURCE: National Science Foundation

engineers contribute four-fifths of the time spent by full-time faculty on academic research in this country.[2] If the efforts of postdoctorates and nonfaculty research staff are also included, the predominance of universities in research becomes even more marked.

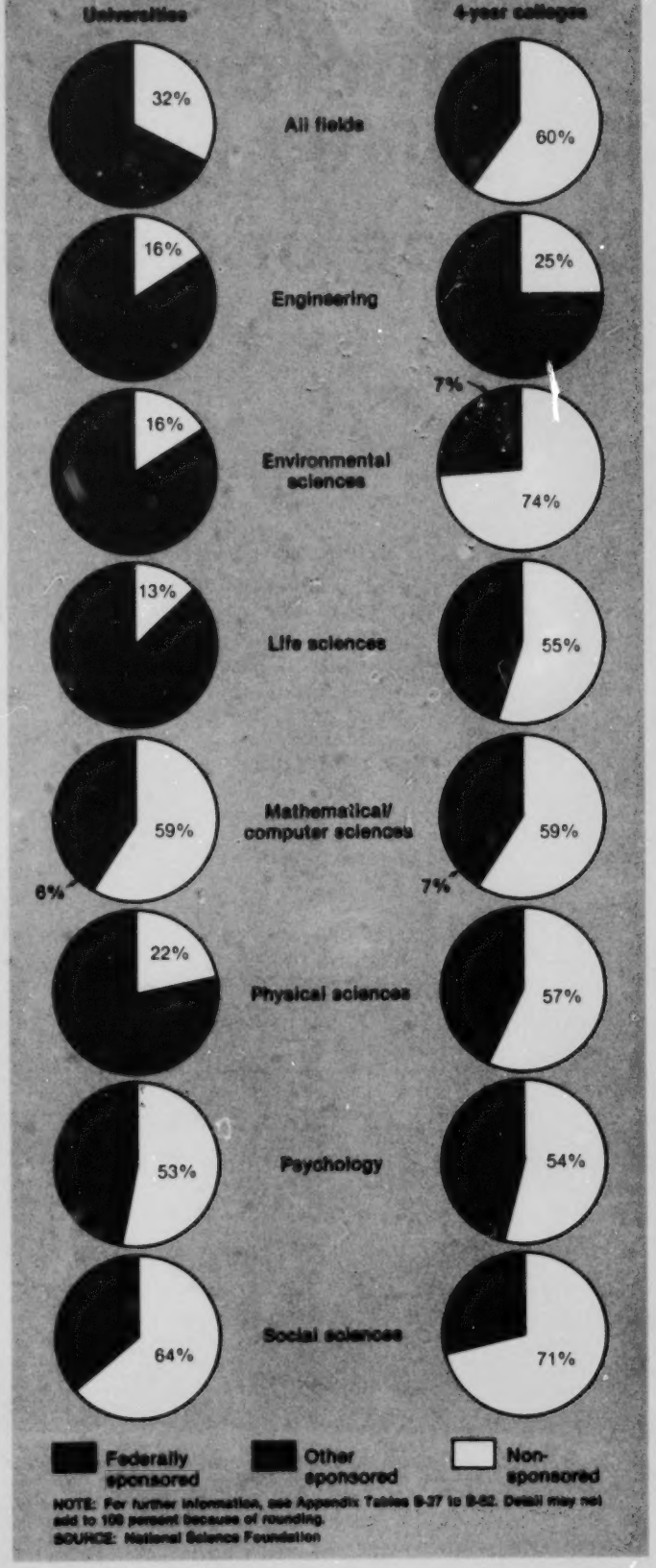
Almost all of the difference between the levels of research in universities and 4-year colleges is accounted for by time spent on Federal grants and contracts (chart 1). University faculty averaged about 9.5 hours per week in federally supported research versus only 1 hour in 4-year colleges. Because of the limited assistance from Federal agencies and other sponsors, about three-fifths of 4-year college research hours were unsponsored as compared to one-fourth in universities (chart 1).

University scientists and engineers compensate only partially for more time in research by spending fewer hours in other activities. Their average workweek of 48 hours was 5 hours longer than that of their 4-year college counterparts. Greater research involvement may be the cause of more extensive participation of university faculty in activities of professional organizations, refereeing for journals, and similar pursuits (2.5 hours per week versus 1.0 hours for those in 4-year colleges). University faculty also allocate more time to earning outside income through preparation of books and other publications (2.5 hours versus 1.5 hours per week).

As a nationwide group, university S/E faculty contribute about the same number of hours to instructional activities as do their 4-year college colleagues. The greater average time spent in this category by each member of the latter group (22 hours versus 15 hours per week) is offset by the larger number of S/E faculty in universities. Faculty in the two types of institutions differ in the composition of their instructional time. Four-year college S/E faculty are in classrooms or laboratories for 40 percent of their instructional hours, as compared to only 30 percent at universities. In terms of number of hours, the first group averages almost twice as many per week. A likely explanation is that 4-year teachers have limited access to graduate assistants capable of assuming many classroom and laboratory duties.

The discussion thus far has focused on the relation of the highest degree offered by institutions to faculty activity profiles. By contrast, another institutional characteristic, type of control (public versus private), makes little difference for universities. Among 4-year college faculty, however, those in private institutions work fewer hours per week (39 versus 45) and devote less time to research (4 hours versus 6 hours).

Chart 1. Research time in universities and 4-year colleges, November 1978-October 1979



NOTE: For further information, see Appendix Tables B-37 to B-52. Detail may not add to 100 percent because of rounding.
SOURCE: National Science Foundation

[2]This figure is the product of the number of full-time S/E faculty in universities and 4-year colleges and the averages of hours per week in research in each type of institution. It does not account for the research contribution of 2-year college staff.

key differences in activity profiles by field

The preceding section describes how full-time faculty in universities and 4-year colleges differ in their activity profiles. Within universities, faculty activity patterns show important variations among fields. Less marked differences also exist among disciplines in 4-year colleges.

At the university level, research time divides all but one of the broad S/E fields into two distinct groups (table 2). In the first group, psychologists, mathematical/computer scientists, and social scientists devote an average of around 10 hours per week to research, about one-half as much as the environmental, life, and physical scientists. Engineers are close to the midpoint between the two groups. As was found earlier for differences in research largely by type of institution, federally supported research accounts for the variance in total research involvement.

University mathematical/computer scientists fell close to their colleagues in other S/E fields in time spent on nonresearch activities. Accordingly, their average workweek of about 40 hours fell well below the overall university mean of 48.[3] Social scientists, however, reached the latter level by devoting more hours to instruction and continuing educa-

[3]Psychologists also averaged about 40 hours per week, but the difference between this figure and the mean for all fields combined is not statistically significant at the 10-percent level of confidence because of the large standard deviation associated with the psychology average.

Table 2. Professional activity of university science/engineering faculty by department: November 1978—October 1979

(Hours per week)

Activity	Total faculty N=66,950		Engineering N=9,663		Environmental sciences N=3,591		Life sciences N=22,835		Mathematical/ computer sciences N=6,251		Physical sciences N=9,092		Psychology N=4,057		Social sciences N=11,460	
	Mean	Percent	Mean	Percent	Mean	Percent	Mean	Percent	Mean	Percent	Mean	Percent	Mean	Percent	Mean	Percent
All activities	48.2	100	49.1	100	49.7	100	50.6	100	40.6	100	49.6	100	39.5	100	48.1	100
Instructional	14.9	31	15.5	32	13.7	28	13.4	26	16.7	41	13.8	28	13.0	33	18.2	38
Research	15.6	32	14.7	30	18.8	38	18.8	37	9.6	24	20.5	41	9.1	23	10.5	22
(Federally sponsored)	(9.4)	(29)	(10.1)	(21)	(11.1)	(22)	(13.4)	(26)	(3.3)	(8)	(14.4)	(29)	(3.3)	(8)	(2.1)	(4)
Public service, administration and miscellaneous professional	9.5	20	10.0	20	10.8	22	11.0	22	7.2	18	8.0	16	8.8	22	8.4	17
Outside income-producing	4.2	9	5.8	12	1.9	4	3.6	7	2.9	7	3.9	8	5.6	14	4.8	10
Continuing education and professional enrichment	4.1	9	3.0	6	4.4	9	3.9	8	4.2	10	3.4	7	3.0	8	6.1	13

NOTE: "N" refers to weighted estimate of the university population of full-time faculty in ranks of full, associate, and assistant professor. Other ranks are excluded.

SOURCE: National Science Foundation

tion, general professional reading, and similar professional development.

Analysis of university activity profiles also reveals some variation by discipline in time used to earn outside income (chart 2). Although faculty have traditionally engaged in these activities, such supplementary income may have become more important recently because of the declining purchasing power of academic salaries. According to the American Association of University professors, salaries for faculty in all fields, including S/E and non-S/E, fell in real terms by 21 percent between 1971 and 1981.[4]

Engineers and psychologists ranked near the top in time engaged in activities producing outside income (e.g., consulting, writing for remuneration, etc.). Their mean for this activity was about 6 hours per week as compared to an all-discipline average of about 4.[5] The high demand for the consulting services of engineers is consistent with their traditionally close ties to industry. Among those at the lower end of outside income-producing activities, environmental scientists averaged only about 2 hours weekly in such endeavors.

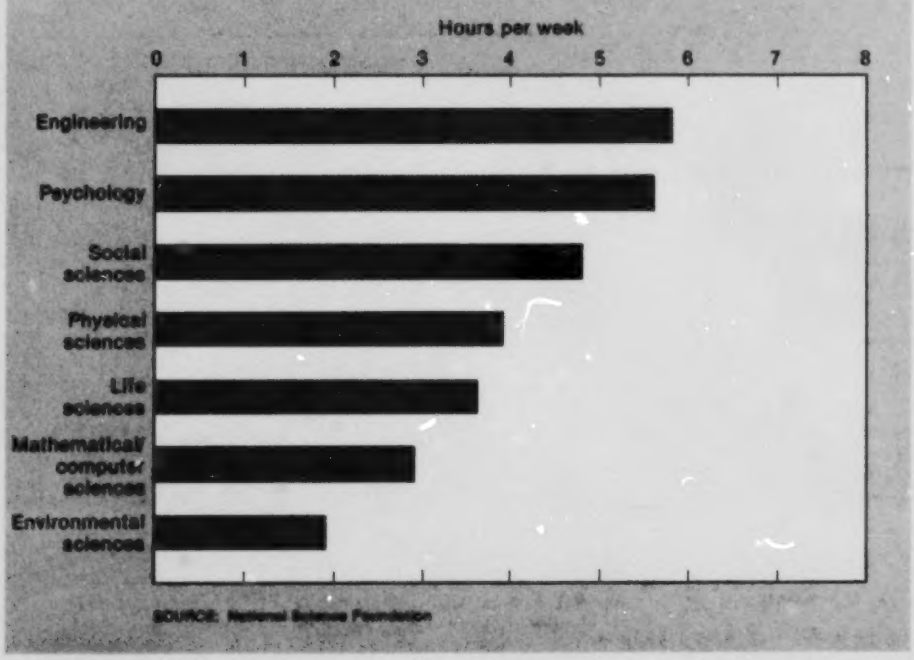
Among 4-year college faculty, the comparatively small amount of time spent in federally supported research reduces the variation among fields both in total research hours and in average workweeks. Of the relatively few statistically significant activity differences among the fields, the mathematical/computer sciences emerge as somewhat lower than average in total research (3 hours versus 5 hours per week) and higher in instruction (25 hours versus 21 hours). The latter reflects the greater burden on mathematics faculty in teaching students majoring in other disciplines. This interpretation is substantiated by a 1981 Higher Education Panel survey supported by NSF. That study found that only one-eighth of mathematics instruction in 4-year colleges was in upper-division courses which would primarily be taken by mathematics majors.[6] (The comparable fraction is one-seventh for university mathematics student credit hours.)

[4]American Association of University professors, *Academe: Bulletin of the AAUP* (Washington, D.C., August 1981).

[5]Psychologists also averaged nearly 6 hours weekly in this category, but the difference between this figure and the mean for all fields combined is not statistically significant at the 10-percent level of confidence.

[6]This survey, "Undergraduate Instruction in Science, Engineering, and the Humanities," was conducted by the American Council on Education (ACE) for NSF and the National Endowment for the Humanities. ACE is preparing a report of its findings.

Chart 2. Full-time university faculty time spent on production of outside income by field: November 1978-October 1979



the seasonality of faculty activities

The general seasonal pattern of faculty workloads is well known, but previously, little quantitative data have been available on how much various activities vary by season. In particular, it was unknown whether there is seasonal variance in faculty research time, most of which is funded by Federal grants and contracts which provide support throughout the year.

The activities survey confirmed the strong seasonal shifts in the lengths of faculty workweeks. During the fall and spring terms, including holidays, workweeks averaged 50 hours in all institutions, about 15 hours longer than during the summer months. As would be expected, the lower summer average resulted, in part, from more days of leisure during the traditional vacation period. In the summer, about 1 in 6 weekdays had no recorded professional activity as compared to only 1 in 23 during the remainder of the year. The survey results also indicate that fewer hours are worked per day in the summer. Most of the overall decline was a result of lower hours in instruction—from about 20 per week during September through May to only 10 per week during the summer. Teaching hours spent in classrooms and laboratories dropped by about the same fraction as time devoted to grading papers, advising students, planning classes, and similar tasks.

No significant seasonal pattern was found in average hours spent per week on research in all institutions combined. University faculty, however, registered a statistically significant decline of about 3 hours per week during the summer. Federally supported time did not fall by a significant amount either in universities or in all institutions combined.

comparisons with other measures of research activity

A major objective of the survey of faculty activities was to assess the magnitude of academic research activity more comprehensively than had been done before. Some national surveys have collected information on staff full-time-equivalents (FTE's) in university and college research. These FTE estimates, however, are based on sponsored research and omit research that is not separately budgeted. Other nationwide surveys have asked chairmen to estimate the extent of faculty research in their departments, but there is no ready way to check the accuracy of these estimates. Still other national surveys have collected data on the primary work activity of faculty, but such measures tell little about the actual extent of research. In addition, both the primary work activity and the FTE surveys usually employ an "as of" date for reporting which means that the data are representative of a specific time period and not necessarily of the entire year.

To avoid the shortcomings of other national studies, the faculty activities survey requested information on both sponsored and unsponsored research, with the individual faculty member reporting his or her own activities in hours per day. Furthermore, the survey spread the sample faculty evenly over a 12-month period, and not just over periods when classes were being held.

Evidence from this survey indicates that FTE measures tend to understate the actual extent of total research effort. Another NSF survey found one-fifth of S/E full-time-equivalents in academia allocated to separately budgeted (and, therefore, sponsored) research activities.[7] By contrast, the survey described here puts total research, including nonsponsored, at one-fourth of all professional time.[8] As would be expected, the FTE approach does tend to understate research activity the most in those three fields—psychology, the mathematical/computer sciences, and the social sciences—where nonsponsored time constitutes one-half or more of total research. In these three cases, the activity survey found that between 14 percent and 19 percent of worktime was in research in comparison to the FTE study's finding of between 7 percent and 9 percent of Full-time equivalents being in research.

Primary work activity—a useful indicator of a person's principal function—is a relatively imprecise measure of activity because a wide range of activity levels can qualify as being "primary." For example, a person's identification of research as his or her primary activity does not mean that person spends at least one-half of work hours in research. A comparison of the results of this survey with another limited to Ph.D.'s,[9] confirms that many faculty who select research as their primary pursuit actually spend most of their worktime doing other things. The second survey found that 33 percent of the academically employed S/E Ph. D.'s in 1979 reported research as their primary activity. In contrast, an unweighted tabulation of responses to the faculty activities survey by doctorates revealed that only 18 percent devoted one-half or more of their professional time to research. The largest divergence was in the life sciences where about 49 percent of doctoral faculty were primarily engaged in research, but only 25 percent spent a majority of their time in this area. The smallest difference was in the social sciences where 14 percent were engaged primarily in research and 9 percent spent over one-half their time in this activity.

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[7] National Science Foundation, *Academic Science: Scientists and Engineers*, January 1980 (Detailed Statistical Tables) (NSF 81-307) (Washington, D.C., 1981).

[8] The NSF survey that collects FTE information relies upon institutions to use whatever records are available in forming their FTE estimates. The basis for that survey is therefore not strictly comparable to the log-diary approach used for the faculty activities survey. Also, the FTE survey, which extends to 2-year colleges, includes nonfaculty research staff as well as postdoctorates. The broader institutional coverage tends to reduce the fraction, whereas the broader personnel coverage tends to have the opposite effect.

[9] The 1979 Survey of Science, Engineering, and Humanities Doctorates. Figures cited above are from unpublished tabulations.

the substitution of Federal for non-Federal research support

The important role of Federal support in academic research raises the issue of the extent to which Federal funding displaces other support. If such displacement does occur, Federal funding may not greatly increase the total amount of academic research undertaken. If there is substitution, nonfederally sponsored and nonsponsored time combined should be inversely related to federally supported hours. An analysis of the approximately 2,500 responses to this survey found that a trivial amount of substitution actually takes place. For individual faculty members in all fields combined, an additional 1 hour of federally sponsored research was significantly associated with a drop of about 5 minutes in research without Federal support. Among the broad fields, only psychology failed to have such a negative link between federally sponsored and other research.[10] In all cases, however, variation in hours of federally supported research explained only a very small portion of the variation in time for other research.[11] (See appendix C for additional detail on this analysis.)

[10]The links between federally sponsored and other research were tested in regressions in which each respondent to the survey provided a single observation. Variables for the status of those in tenure-track positions and for those who were not in the tenure track were found to have no relation to hours of research without Federal support. These were entered as dummy variables separately in some equations and multiplied by hours of Federal research, which was also a separate variable in all equations, in others. Because the tenure-track variables were found to be insignificant the regressions in which they appear are omitted from the statistical findings presented in appendix C.

[11]More exactly, the regressions testing for research funding links all coefficients of determination (R^2) near zero.

appendixes

a. technical notes

b. detailed statistical tables

c. statistical results from regression analysis of research funding

d. reproduction of survey form

appendix a

technical notes

survey procedures

This section summarizes the procedures that produced the survey results presented in this report. The chief statistical processes are described in four subsections: (1) drawing the survey sample, (2) weighting the survey responses, (3) estimating the precision of the survey results, and (4) calculating effective response rates. In addition, the reasons for dropping "other ranks" from the calculations are stated.

drawing the survey sample

The survey universe consisted of full-time faculty members in 20 specified S/E fields at eligible universities and 4-year colleges. Eligible institutions were those that awarded baccalaureate or higher degrees in at least one S/E field in the academic year 1975/76. The 20 fields, which were aggregated into 7 broad fields, are listed below:

I. Engineering
   - Aeronautical/Astronautical engineering
   - Chemical engineering
   - Civil engineering
   - Electrical/electronic engineering
   - Mechanical engineering
   - Other engineering (e.g., agricultural textile, nuclear, industrial, or metallurgical, engineering)

II. Environmental sciences (earth, atmospheric, or marine sciences

III. Life sciences
   - Agricultural sciences (including forestry)
   - Biological sciences

IV. Mathematical/computer sciences
   - Computer science
   - Mathematics

V. Physical sciences
   - Chemistry
   - Physics
   - Astronomy
   - Other physical sciences (e.g., metallurgy)

VI. Psychology

VII. Social sciences
   - Economics
   - Political science
   - Sociology
   - Other social sciences (e.g., anthropology, history and philosophy of science, linguistics, geography)

Excluded from the survey universe were faculty in the clinical medical sciences, although medical school faculty were included if they were either teaching or performing research in the biological sciences. Department heads and higher administrators were excluded unless they also had teaching or research activities. The listing of the survey universe was developed from a magnetic tape file of college faculty members procured from the Educational Directory, American University Press Service (AUPS), as updated September 1977. This listing was grouped in four basic strata defined by the faculty member's affiliations with one of four types of institutions: (1) public and non-Ph. D.-granting, (2) public and Ph. D.-granting, (3) private and non-Ph. D.-granting, and (4) private and Ph. D.-granting. Twenty samples were randomly selected from the listing, 1 for each of the 20 S/E fields. Each of the 20 field samples was divided into the 4 strata (tables A-1 and A-2).

The size of each sample was set to meet a specific statistical criterion, i.e., that the standard deviation should not exceed 2 percentage points if the actual time for a particular activity was 35 percent in a total departmental sample, and 3 percentage points in the 4 stratum-defined subpopulations. This calculation of sample size assumed a response rate of 70 percent.

The sampled faculty were allocated, by a probability process, over the fields as evenly as possible to 52 weekly cohorts. Responses were in one of several categories: Usable completed questionnaires, refusals, nondeliverables, and persons determined to be out-of-scope for the study, i.e., those who were not full-time S/E faculty in a university or 4-year college at the time of the survey. In addition, there were many cases in which people did not respond to the survey. A subsample of the nonrespondents was telephoned in an attempt to increase the number of usable completed questionnaires.

weighting the survey responses

The survey responses from the sampled faculty were multiplied by final weights specific to each response. This produced estimates of the activities of

all full-time faculty in the specified fields. The final weight for each usable return was the product of four numbers: (1) a basic weight, (2) a subsampling weighting factor, (3) a nonresponse adjustment, and (4) a ratio estimation factor.

(1) The basic weight for each case was simply the reciprocal of the probability of selection: the number of persons on the list in a given field-stratum group divided by the number of persons selected for the sample in the group.

(2) The subsampling weighting factor reflects, for each week, the reciprocal of the probability of selection of cases for telephone followup. This was equal to the number of nonresponse cases to be represented by the subsample divided by the number of subsampled cases. For usable returns received prior to the subsampling process, or for units in cohorts not subsampled, the subsampling weight is one. Only about 9 percent of the respondents have a larger subsampling weighting factor.

(3) The nonresponse adjustment was calculated for each sample group by dividing the number of in-scope cases[1] by the number of usable returned questionnaires.

(4) The AUPS tape from which the survey sample was drawn did not contain the latest information on faculty by the time the survey was conducted. Everyone on the tape had added 2 or 3 years of experience between the time their names were put on the tape and the time they were asked to complete the survey form. Thus, many faculty had been promoted resulting in a disproportionately large number of full professors and too few assistant professors. Similarly, more faculty on the tape were tenured and fewer were untenured than was representative of the characteristics of all S/E faculty (according to the American Council on Education (ACE) study cited below). Therefore, a "ratio estimation factor" was used to make the survey estimates more representative of this population. Tables A-3 to A-10 give the characteristics of the 2,464 respondents to the survey.

The results of the ACE study *Tenure Practices at Four-Year Colleges and Universities*[2] were the basis for the ratio estimation that made the survey results more representative of all full-time S/E faculty. This report gave the number of full-time faculty by institutional type and tenure status at the beginning of academic year 1978/79.

The survey responses (including those from "other" ranks) were weighted by the product of the aforementioned (1), (2), and (3) and the results tabulated by tenure status and institutional type. These weighted results were divided into the ACE data to provide the ratio estimation factors. Thus there would be, for example, one ratio estimation factor for untenured faculty at public doctorate-granting institutions in all S/E fields. The ratio estimation factor for a given usable return, when multiplied by the product of the other three weighting factors, gave the final weight for each case. Table A-11 compares the distributions by tenure status of the sample and weighted populations.

estimating the precision of the survey results

Since the statistics derived from this survey are estimates based on a sample, they may differ from the figures that would have been obtained had a census been made of all eligible faculty using the same questionnaire and procedures. The probability design of the sample for this survey makes possible the calculation of estimates of precision from the study data. Estimates of sampling variability were based on the results of using a replication technique.[3] This technique yields estimates of overall variability through observation of variability among random subsamples of the total sample. Estimates of sampling variability for this study were based on 16 random half-sample replications. After the composition of each of the half-sample was determined, each half-sample was weighted using (1) the basic weight, (2) subsampling factor, (3) nonresponse adjustment, and (4) separate ratio estimation factors for the half-sample.

The weighted half-samples, together with the weighted full sample, were used to produce estimates of study results. These weighted results were used in a simple formula to estimate the variance of the estimated study results. The simple formula calculates the mean of the 16 squared deviations of half-sample estimates from the full sample estimate; the square root of the estimated variance is the estimated standard error of study results. These estimates of standard error reflect both the error that arises from sampling and the effect of the estimation procedure, but do not measure any systematic biases in the data.

The standard error is a measure of the sampling variation that occurs by chance because only a sample rather than the entire list of faculty members is studied. The chances are about 68 out of 100 that an estimate from the sample differs from the value for the entire list by less than the standard error; the chances are about 90 out of 100 that the difference is less than 1.65 times the standard error; the chances are about 95 out of 100 that the difference is less than twice the standard error.

[1]The number of in-scope cases was determined through information gained in response to questionnaires and routine followup of nonrespondents. Additional information came from a special study of a sample of those cases where the questionnaires were returned as being nondeliverable because the whereabouts of the sample faculty members was unknown. This special study also examined the accuracy of the original classification of the out-of-scope cases. A fraction of these were found to be actually in-scope and were reclassified.

[2]American Council on Education, *Tenure Practices at Four-Year Colleges and Universities*, Higher Education Panel Report No. 48 (Washington, D.C., July 1980).

[3]This survey used ratio estimation to develop universe estimates. Unlike simpler survey designs, use of such estimation implies nonzero covariance terms. The replication technique simplifies computation of measures of variability from the survey by eliminating the need to calculate covariance terms. For a detailed discussion of this technique, see National Center for Health Statistics, *Replication—An Approach to the Analysis of Data From Complex Surveys*, Vital and Health Statistics, PHS Publ. 1000-Series, Series 2, No. 14 (Washington, D.C.: Supt. of Document, U.S. Government Printing Office, April 1966.)

calculating response rates

Response rates can serve as indicators of the degree to which the people who respond to a survey represent the universe described by the survey. Given a sampling plan that adequately represents a universe, high response rates assure that this representativeness is maintained. A low response rate can mean that the sample of respondents no longer closely corresponds to the universe—particularly if the likelihood of nonresponse is proportional to some characteristic of those sampled. If survey responses are not weighted, the response rate is simply the percentage of those surveyed who complete questionnaires. When responses are weighted to obtain estimates of population characteristics, the weights should also appropriately account for less than 100-percent response. The next paragraph briefly explains how response rates were calculated.

In this survey there were two phases, the initial sample phase (h=1) and the subsample (or telephone followup) phase (h=2). Among the survey responses for h=1, there were exact counts of the in-scope cases (the sum of usable responses and refusals, plus the number of nondeliverables that are determined to be in-scope) as well as out-of-scope cases. For (h=2), a fraction (1/K) of those who did not respond originally were resurveyed. From the returns for h=2, estimates were made of the status of *all* those who did not respond in h=1 who were also still in-scope. These estimates are equal to the product of K and the number of responses, refusals, and out-of-scope cases for h=2.

To elaborate, let:

n_1 = actual number of in-scope cases in h=1

n_2' = estimated number of in-scope cases in h=2 (in-scope responses times K)

Then the total number of in-scope cases was:

$$n' = n_1 + n_2'$$

Further let:

r_1 = actual number of usable responses in h=1

r_2' = estimated usable responses for h=2 (actual responses times K)

Then, the effective response rate was:

$$\frac{r_1 + r_2'}{n'}$$

The survey had an effective response rate for all fields combined of 66 percent (table A-12).

dropping other ranks

Of the 2,464 faculty who returned usable questionnaires, only 48 did not have the rank of full, associate, or assistant professor. When the survey responses were weighted and tabulated, the averages for hours spent in various activities by these "other ranks" had very large standard deviations. Because of this unreliability respondents in "other ranks" were dropped from the activity information presented in this report. The tables describing the characteristics of the survey respondents (table A-1 through A-12) were based on all respondents, however, including the small number in "other ranks."

Table A-1. The field-stratum sample sizes

Teaching/research field	All institutions	Stratum			
		Public nondoctorate institutions	Public doctorate institutions	Private nondoctorate institutions	Private doctorate institutions
All fields combined	6,385	1,367	2,694	1,095	1,229
Aeronautical engineering	289	43	145	45	56
Chemical engineering	260	33	137	37	53
Civil engineering	306	75	138	30	63
Electrical engineering	290	68	117	50	55
Mechanical engineering	271	49	132	40	50
Other engineering	301	64	140	39	58
Environmental sciences	287	68	125	38	56
Agricultural sciences	478	119	205	74	80
Biological sciences	568	97	251	74	146
Computer sciences	535	118	222	103	92
Mathematics	255	58	96	56	45
Chemistry	236	51	86	57	42
Physics	256	59	102	40	55
Astronomy	440	94	184	92	76
Other physical sciences	168	16	110	9	33
Psychology	239	59	79	58	43
Economics	320	75	131	61	53
Political sciences	233	56	82	46	49
Sociology	243	63	84	59	37
Other social sciences	404	102	128	87	87

SOURCE: National Science Foundation

Table A-2. Percentage of full-time faculty on AUPS tape sampled by field and stratum

Teaching/research field	All institutions	Stratum			
		Public nondoctorate institutions	Public doctorate institutions	Private nondoctorate institutions	Private doctorate institutions
All fields combined	5.3	5.7	4.7	6.3	5.8
Aeronautical engineering	27.9	41.0	25.0	36.6	24.6
Chemical engineering	25.1	80.5	19.2	100.0	21.7
Civil engineering	12.5	24.8	8.8	28.3	13.4
Electrical engineering	9.8	16.5	7.4	17.8	8.0
Mechanical engineering	14.9	24.4	11.7	26.7	14.5
Other engineering	5.4	8.7	4.0	10.6	5.9
Environmental sciences	8.5	9.8	6.5	14.6	11.0
Agricultural sciences	7.0	15.6	3.8	27.1	22.5
Biological sciences	2.1	2.3	1.9	2.3	2.4
Computer sciences	9.4	9.4	8.6	11.2	9.7
Mathematics	2.4	2.2	2.1	2.8	2.8
Chemistry	2.6	2.5	2.4	2.8	2.6
Physics	5.2	6.4	4.5	6.8	5.0
Astronomy	20.7	19.4	20.6	21.7	21.4
Other physical sciences	100.0	100.0	100.0	100.0	100.0
Psychology	2.6	2.5	2.5	2.8	2.9
Economics	4.4	5.0	3.7	5.8	4.3
Political sciences	4.9	4.5	4.5	5.5	5.5
Sociology	5.0	5.3	4.6	5.9	5.9
Other social sciences	4.1	3.7	3.3	4.9	6.5

SOURCE: National Science Foundation

Table A-3. Percentage distribution of the age of science/engineering (S/E) faculty responding to survey by type of institution and by possession of the doctoral degree: November 1978—October 1979

Age group	All institutions		Type of Institution							
			Public institutions		Private institutions		Doctorate institutions		Nondoctorate institutions	
	All S/E faculty n=2,464	Doctorate faculty n=2,051	All S/E faculty n=1,589	Doctorate faculty 1,336	All S/E faculty n=875	Doctorate faculty n=715	All S/E faculty n=1,618	Doctorate faculty n=1,460	All S/E faculty n=846	Doctorate faculty n=591
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30 or younger	.8	.6	.9	.6	.7	.6	.7	.6	1.0	.7
31-35	8.6	9.4	7.9	8.4	9.8	3.1	8.5	9.1	8.8	10.2
36-40	20.4	21.7	20.6	22.0	20.0	15.0	18.9	19.9	23.4	26.2
41-45	19.1	20.1	19.9	21.4	17.6	16.9	18.7	19.6	19.7	21.5
46-50	17.4	17.8	18.1	18.4	16.1	13.8	17.8	18.4	16.7	16.2
51-55	12.8	12.4	12.3	11.5	13.7	11.9	13.9	13.5	10.6	9.8
56-60	12.3	10.7	12.9	11.5	11.2	20.0	12.9	11.6	11.1	8.6
61-65	5.8	4.5	5.0	3.8	7.3	14.4	5.5	4.7	6.4	4.1
66 or older	2.8	2.7	2.4	2.3	3.5	4.4	3.0	2.7	2.4	2.7

NOTE: "n" refers to unweighted numbers of sampled faculty, including those in "other" ranks.

SOURCE: National Science Foundation

Table A-4. Percentage distribution of the age of science/engineering (S/E) faculty responding to survey by type and level of institution and by possession of the doctoral degree: November 1978—October 1979

Age group	All institutions		Type of Institution							
			Public institutions				Private institutions			
			Doctorate-granting		Nondoctorate-granting		Doctorate-granting		Nondoctorate-granting	
	All S/E faculty n=2,464	Doctorate faculty n=2,051	All S/E faculty n=1,130	Doctorate faculty n=1,020	All S/E faculty n=459	Doctorate faculty n=316	All S/E faculty n=488	Doctorate faculty n=440	All S/E faculty n=387	Doctorate faculty n=275
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30 or younger	.8	.6	.9	.7	.9	.3	.4	.5	1.0	1.1
31-35	8.6	9.4	7.6	8.1	8.7	9.2	10.7	11.4	8.8	11.3
36-40	20.4	21.7	19.0	20.2	24.6	27.9	18.4	19.1	22.0	24.4
41-45	19.1	20.1	19.7	20.6	20.3	24.1	16.4	17.3	19.1	18.6
46-50	17.4	17.8	18.2	19.0	17.9	16.1	16.8	17.1	15.3	16.0
51-55	12.8	12.4	13.1	12.3	10.2	9.2	15.8	16.4	11.1	10.6
56-60	12.3	10.7	13.7	12.5	10.9	8.5	11.1	9.6	11.4	8.7
61-65	5.8	4.5	5.0	4.2	4.8	2.5	6.6	5.7	8.3	5.8
66 or older	2.8	2.7	2.7	2.5	1.7	1.9	3.9	3.2	3.1	3.6

NOTE: "n" refers to unweighted numbers of sampled faculty, including those in "other" ranks.

SOURCE: National Science Foundation

Table A-5. Percentage distribution of the age of science/engineering faculty responding to the survey by department: November 1978—October 1979

Department	Age Group						
	35 or younger	36-40	41-45	46-50	51-55	55-60	61 or older
All departments combined .... n=2,464	9.4	20.4	19.1	17.4	12.8	12.3	8.6
Engineering							
Aeronautical/astronautical .... n=60	10.0	15.0	11.7	21.7	18.3	15.0	8.3
Chemical ..... n=105	4.8	15.2	22.9	21.0	15.2	12.4	8.6
Civil ..... n=118	5.1	16.1	25.4	22.9	8.5	14.4	7.6
Electrical ..... n=117	2.6	21.4	17.1	17.1	18.8	16.2	6.8
Mechanical ..... n=162	6.2	11.7	22.8	17.3	16.1	16.1	9.9
Other engineering ..... n=194	6.7	9.8	21.7	19.6	16.5	18.6	7.2
Environmental sciences ..... n=142	12.7	21.8	16.2	17.6	9.9	12.7	8.2
Life sciences							
Agricultural sciences ..... n=157	5.7	19.1	17.2	17.8	14.7	14.7	10.8
Biological sciences ..... n=282	7.5	21.6	15.6	20.9	13.1	12.8	8.5
Mathematical/computer sciences							
Computer science ..... n=87	21.8	25.3	19.5	12.6	4.6	10.3	5.8
Mathematics ..... n=187	13.4	28.9	16.6	13.9	10.2	7.5	9.6
Physical sciences							
Chemistry ..... n=136	9.6	25.0	18.4	13.2	13.2	11.8	8.8
Physics ..... n=275	4.0	25.1	24.4	16.7	12.0	10.9	4.9
Astronomy ..... n=61	13.1	27.9	11.5	19.7	14.8	8.2	4.9
Other physical sciences ..... n=15	20.0	13.3	13.3	33.3	20.0	0	0
Psychology ..... n=84	25.0	10.7	14.3	16.7	13.1	10.7	9.5
Social sciences							
Economics ..... n=64	15.6	18.8	20.3	9.4	10.9	7.8	17.2
Political science ..... n=65	16.9	24.6	23.1	12.3	7.7	7.7	7.7
Sociology ..... n=84	14.3	25.0	16.7	15.5	10.7	8.3	9.5
Other social sciences ..... n=69	11.6	26.1	18.8	14.5	8.7	8.7	11.6

NOTE: "n" refers to unweighted numbers of sampled faculty, including those in "other" ranks.

SOURCE: National Science Foundation

Table A-6. Number and percent of science/engineering (S/E) faculty responding to survey by department and academic rank: November 1978—October 1979

Department	Total, all ranks		Academic Rank							
			Professor		Associate professor		Assistant professor		Other ranks	
	n	%	n	%	n	%	n	%	n	%
Total, all S/E departments ..	2,464	100.0	1,305	53.0	850	34.5	261	10.6	48	2.0
Engineering, total ...	756	100.0	463	61.2	226	29.9	52	6.9	15	2.0
Aeronautical/ astronomical ..	60	100.0	35	58.3	12	20.0	8	13.3	5	8.3
Chemical engineering ...	105	100.0	75	71.4	26	24.8	3	2.9	1	1.0
Civil engineering .	118	100.0	75	63.6	36	30.5	7	5.9	0	.0
Electrical engineering ...	117	100.0	63	53.9	46	39.3	6	5.1	2	1.7
Mechanical engineering ...	162	100.0	98	60.5	48	29.6	14	8.6	2	1.2
Other engineering ...	194	100.0	117	60.3	58	29.9	14	7.2	5	2.6
Environmental science, total	142	100.0	68	47.9	52	36.6	17	12.0	5	3.5
Life science, total ...	439	100.0	235	53.5	156	35.5	42	9.6	6	1.4
Agricultural sciences	157	100.0	91	58.0	51	32.5	10	6.4	5	3.2
Biological sciences	282	100.0	144	51.1	105	37.2	32	11.4	1	.4
Mathematical/ computer sciences, total ...	274	100.0	113	41.2	112	40.9	40	14.6	9	3.3
Computer science	87	100.0	30	34.5	39	44.8	14	16.1	4	4.6
Mathematics	87	100.0	83	44.4	73	39.0	26	13.9	5	2.7
Physical sciences, total	487	100.0	275	56.5	158	32.4	45	9.2	9	1.9
Chemistry	136	100.0	78	57.4	42	30.9	15	11.0	1	0.7
Physics	275	100.0	155	56.4	95	34.6	21	7.6	4	1.5
Astronomy	61	100.0	34	1.4	17	.7	7	11.5	3	4.9
Other physical sciences	15	100.0	8	53.3	4	26.7	2	13.3	1	6.7
Psychology	84	100.0	42	50.0	26	31.0	15	17.9	1	1.2
Social sciences, total	282	100.0	109	38.7	120	42.6	50	17.7	3	1.0
Economics	64	100.0	34	53.1	21	32.8	9	14.1	0	.0
Political science ..	65	100.0	27	41.5	27	41.5	10	15.4	1	1.5
Sociology	84	100.0	29	34.5	37	44.1	17	20.2	1	1.2
Other social sciences	69	100.0	19	27.5	35	50.7	14	20.3	1	1.5

NOTE: 'n' refers to unweighted numbers of sampled faculty.

SOURCE: National Science Foundation

Table A-7. Academic rank of science/engineering faculty responding to survey by type of institution: November 1978—October 1979

Type of institution	Academic Rank									
	All ranks		Professor		Associate professor		Assistant professor		Other ranks	
	n	%	n	%	n	%	n	%	n	%
All institutions	2,464	100	1,305	53.0	850	34.5	261	10.6	48	2.0
All public	1,589	100	851	53.6	562	35.4	149	9.4	27	1.7
All private	875	100	454	51.9	288	32.9	112	12.8	21	2.4
All doctorate	1618	100	958	59.2	51.4	31.8	117	7.2	29	1.8
All nondoctorate	846	100	347	41.0	336	39.7	144	17.0	19	2.3
Public doctorate	1,130	100	661	58.5	374	33.1	78	6.9	17	.7
Public nondoctorate	459	100	190	41.4	[illegible]	41.0	71	15.5	10	2.2
Private doctorate	488	100	297	60.9	140	28.7	39	8.0	12	2.5
Private nondoctorate	387	100	157	40.6	148	38.2	73	18.9	9	2.3

NOTE: "n" refers to unweighted numbers of sampled faculty, including those in "other" ranks.

SOURCE: National Science Foundation

Table A-8. Percentage distribution of the highest earned degrees held by faculty responding to survey by type of institution: November 1978—October 1979

Type of institution	Total n=2,464	Ph.D. or Sc.D. n=2,054	Master's n=298	All other degrees n=116
All institutions	100.0	83.2	12.1	4.7
All public	100.0	84.1	11.1	4.8
All private	100.0	81.7	13.8	4.5
All doctorate	100.0	90.2	6.5	3.3
All nondoctorate	100.0	69.9	22.8	7.3
Public doctorate	100.0	90.3	6.8	2.9
Public nondoctorate	100.0	68.9	21.8	9.4
Private doctorate	100.0	90.2	5.7	4.1
Private nondoctorate	100.0	71.1	24.0	4.9

NOTE: "n" refers to unweighted numbers of sampled faculty, including those in "other" ranks.

SOURCE: National Science Foundation

Table A-9. Percentage distribution of the highest earned degrees held by faculty responding to survey by department: November 1978—October 1979

Department	Total n=2,464	Ph.D. or Sc.D. n=2,054	Master's n=298	All other degrees n=2,116
All departments	100.0	83.2	12.1	4.7
Engineering	100.0	77.7	16.8	5.6
Environmental sciences	100.0	88.0	9.9	2.1
Life sciences	100.0	82.5	8.9	8.7
Mathematical/computer sciences	100.0	79.2	17.9	2.9
Physical sciences	100.0	88.7	8.6	2.7
Psychology	100.0	89.3	4.8	6.0
Social sciences	100.0	89.7	8.2	2.1

NOTE: "n" refers to unweighted numbers of sampled faculty, including those in "other" ranks.

SOURCE: National Science Foundation

Table A-10. Percentage distribution of the tenure status of science/engineering faculty responding to survey by department: November 1979—October 1979

Department	Total n=2,464	Tenure Status		
		Has tenure n=2,208	No tenure, but in tenure track n=182	Not in tenure track n=74
All departments	100.0	89.6	7.4	3.0
Engineering	100.0	92.1	5.2	2.8
Environmental sciences	100.0	87.3	8.5	4.2
Life sciences	100.0	89.5	7.5	3.0
Mathematical/computer sciences	100.0	86.5	9.1	4.4
Physical sciences	100.0	91.0	6.4	2.7
Psychology	100.0	93.3	13.1	3.6
Social sciences	100.0	86.9	11.0	2.1

NOTE: "n" refers to unweighted numbers of sampled faculty, including those in "other" ranks.

SOURCE: National Science Foundation

Table A-11. Percentage distribution of the survey sample and the weighted population by type of institution and tenure status

Type of institution	Tenured		Nontenured, but in tenure track		Not in tenure track	
	Survey sample n=2,208	Weighted population N=82,983	Survey sample n=182	Weighted population N=32,084	Survey sample n=74	Weighted population N=81,886
All institutions	88.4	67.3	8.9	26.1	2.7	6.6
All public	91.8	69.0	6.3	23.5	2.0	7.5
All private	81.2	63.1	14.6	32.4	4.2	4.5
All doctorate	88.9	68.1	8.5	25.2	2.6	6.7
All nondoctorate	87.5	66.4	9.5	27.1	2.9	6.5
Public doctorate	90.9	69.0	7.0	23.8	2.1	7.2
Public nondoctorate	93.8	69.0	4.4	23.1	1.7	7.9
Private doctorate	83.2	64.7	12.9	30.5	3.9	4.8
Private nondoctorate	78.9	62.1	16.5	33.7	4.6	4.2

NOTE: "n" refers to unweighted numbers of sampled faculty, including those in "other" ranks. "N" refers to the estimated numbers in the population.

SOURCE: National Science Foundation

Table A-12. Effective response rates by field and type of institution (in percents)

Field	All institutions	Public nondoctorate institutions	Public doctorate institutions	Private nondoctorate institutions	Private doctorate institutions
All fields combined	65.7	60.1	68.5	66.0	64.1
Aeronautical engineering	66.4	52.2	76.4	37.9	73.3
Chemical engineering	75.4	55.4	76.3	51.5	78.4
Civil engineering	71.5	57.9	69.7	78.3	85.4
Electrical engineering	77.3	60.0	85.2	47.3	83.1
Mechanical engineering	65.4	58.0	66.6	57.4	73.5
Other engineering	73.9	63.7	75.3	75.8	76.1
Environmental sciences	71.3	69.3	72.9	68.4	68.1
Agricultural sciences	72.3	45.9	75.0	58.6	71.5
Biological sciences	64.2	63.5	64.3	79.7	56.4
Computer sciences	79.8	53.8	100.0	67.3	70.7
Mathematics	68.0	60.8	70.5	83.5	57.0
Chemistry	76.0	75.3	68.2	79.0	90.7
Physics	65.2	58.0	67.9	66.4	67.5
Astronomy	67.3	63.6	67.5	65.3	68.2
Other physical sciences	77.7	(1)	73.9	82.5	91.9
Psychology	55.9	46.7	65.7	49.1	59.1
Economics	53.7	48.4	62.1	48.4	42.0
Political sciences	54.7	73.0	47.9	46.6	55.3
Sociology	52.7	49.4	59.2	37.3	75.5
Other social sciences	62.3	54.4	73.3	71.8	47.0

(1) Too few cases to calculate.

SOURCE: National Science Foundation

appendix b

detailed statistical tables

Professional Activity of S/E Faculty in Mean Hours per Week with Standard Deviations

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By Academic Rank: 1978/79

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Table B-1. Professional activity of science/engineering (S/E) faculty in mean hours per week with standard deviations, by academic rank: 1978/79

All S/E departments

Activity	All ranks N=118,540		Professor N=47,684		Associate professor N=39,306		Assistant professor N=31,550	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.8	0.4	47.2	0.5	43.7	0.5	46.2	1.4
Total instructional	17.8	.3	16.6	.4	18.5	.8	18.8	.6
Classroom	6.1	.3	5.7	.1	6.5	.3	6.3	.6
Other	11.7	.2	11.0	.3	11.9	.5	12.5	.4
Total research	11.0	.2	11.2	.8	10.9	.5	10.6	1.7
Federal	5.7	.3	5.4	.5	6.0	.4	5.9	1.8
Non-Federal	1.7	.3	2.0	.4	1.5	.3	1.5	.3
Nonsponsored	3.5	.2	3.8	.2	3.5	.2	3.2	.7
Total public service, administration and miscellaneous professional	8.6	.2	10.7	.5	7.0	.2	7.4	.9
Public service	1.8	.3	1.9	.3	1.2	.2	2.5	.8
Administration	4.9	.2	6.1	.3	4.5	.2	3.5	.5
Miscellaneous professional	1.9	.3	2.7	.2	1.3	.1	1.4	.7
Total outside income-producing activities	3.7	.3	4.2	.3	3.1	.4	3.6	.5
Consulting	1.2	.1	1.6	.2	1.1	.1	.7	.2
Publication	1.9	.2	1.8	.1	1.7	.4	2.4	.4
Other	.6	.2	.8	.2	.4	.1	.6	.6
Continuing education and professional enrichment	4.7	.2	4.5	.4	4.1	.3	5.7	.5

NOTE: "N" refers to weighted estimates of the population of full-time faculty in ranks of full, associate, and assistant professor. Other ranks are excluded.

SOURCE: National Science Foundation

Table B-2. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

All engineering departments

Activity	All ranks N=143,343		Professor N=6,802		Associate professor N=4,973		Assistant professor N=2,569	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.0	1.5	49.6	1.0	45.3	2.4	48.9	7.3
Total instructional	18.0	.6	17.0	1.6	17.6	1.2	21.4	2.4
Classroom	6.3	.6	5.2	1.1	6.9	.8	8.3	1.1
Other	11.7	.3	11.8	.6	10.7	.7	13.2	1.6
Total research	10.9	1.2	10.4	1.0	12.9	2.4	8.5	2.1
Federal	7.3	1.2	6.7	.9	9.0	2.0	5.5	2.2
Non-Federal	1.8	.3	1.7	.3	1.7	.7	2.2	.5
Nonsponsored	1.9	.3	2.0	.3	2.2	.7	.8	.5
Total public service, administration and miscellaneous professional	8.7	.6	12.0	1.1	5.7	.4	5.7	1.6
Public service	1.5	.3	1.8	.4	1.2	.3	1.6	.8
Administration	5.3	.6	7.6	.8	3.5	.4	2.8	2.4
Miscellaneous professional	1.8	.2	2.6	.3	1.1	.1	1.3	.4
Total outside income-producing activities	7.3	.8	7.1	.9	6.2	.5	10.0	5.0
Consulting	3.8	.3	4.2	.8	4.0	.5	2.4	1.4
Publication	2.6	.8	1.7	.2	1.4	.4	7.0	4.9
Other	.9	.1	1.1	.3	.8	.1	.6	.4
Continuing education and professional enrichment	3.1	.3	3.1	.3	2.9	.4	3.3	1.0

SOURCE: National Science Foundation

Table B-3. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Aeronautical/astronautical engineering departments

Activity	All ranks N=631		Professor N=300		Associate professor N=75		Assistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	46.1	3.3	44.2	2.5	58.7	10.4		
Total instructional	19.4	4.5	18.4	4.3	27.0	13.8		
Classroom	6.3	.6	5.7	1.5	3.0	2.1		
Other	13.1	4.5	12.7	3.1	24.1	14.4		
Total research	10.6	1.2	11.0	1.4	15.2	11.2		
Federal	9.0	1.5	8.2	1.7	12.8	11.1		
Non-Federal	.5	.4	.7	.5	1.9	.7		
Nonsponsored	1.1	.5	2.1	.8	.5	.4		
Total public service, administration and miscellaneous professional	6.9	1.4	7.9	2.1	8.6	2.6		
Public service	.5	.2	.7	.3	.5	1.0		
Administration	4.5	1.4	6.2	2.0	4.7	2.7		
Miscellaneous professional	1.9	.5	1.0	.2	3.4	1.6		
Total outside income-producing activities	5.9	1.9	3.8	2.5	6.9	3.6		
Consulting	2.5	1.3	2.8	1.8	3.1	2.2		
Publication	.3	.2	.5	.2	.7	.6		
Other	3.1	1.7	.5	.6	3.0	3.0		
Continuing education and professional enrichment	3.3	.7	3.1	1.0	1.0	.7		

[1] This category of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-4. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Chemical engineering departments

Activity	All ranks N=1,072		Professor N=760		Associate professor N=240		Assistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	50.0	1.1	50.4	1.8	48.3	3.0		
Total instructional	14.7	1.0	15.9	1.4	14.0	1.2		
Classroom	4.4	.6	4.9	.9	4.3	.3		
Other	10.2	.8	11.0	1.2	9.7	1.3		
Total research	18.1	3.0	16.5	4.6	16.4	2.0		
Federal	15.1	3.5	14.2	4.7	12.4	1.6		
Non-Federal	1.4	.4	1.1	.1	.8	.1		
Nonsponsored	1.7	.6	1.2	.3	3.2	1.5		
Total public service, administration and miscellaneous professional	10.2	1.7	10.9	2.1	9.9	1.5		
Public service	1.2	.3	1.2	.3	1.4	.5		
Administration	6.9	1.2	7.2	1.7	7.7	1.2		
Miscellaneous professional	2.1	.7	2.5	.8	.8	.2		
Total outside income-producing activities	5.0	1.0	4.9	1.4	6.1	1.0		
Consulting	2.9	.5	2.6	.4	4.7	1.4		
Publication	1.7	.5	1.8	.6	1.4	.7		
Other	.4	.2	.6	.4	.0	.0		
Continuing education and professional enrichment	2.0	.3	2.2	.4	1.9	.2		

[1] This category of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-5. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Civil engineering departments

Activity	All ranks N=2,649		Professor N=1,448		Associate professor N=938		Assistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	47.4	1.9	47.1	2.8	45.9	4.6		
Total instructional	17.2	3.0	15.0	4.8	17.9	2.1		
Classroom	6.2	1.8	5.5	2.9	6.2	1.1		
Other	11.0	1.4	9.5	1.9	11.7	1.5		
Total research	10.3	1.7	8.4	2.3	12.6	3.9		
Federal	4.1	1.1	4.5	1.6	3.5	1.6		
non-Federal	3.7	1.1	1.9	.6	5.6	2.8		
Nonsponsored	2.5	.6	1.9	.5	3.6	1.3		
Total public service, administration and miscellaneous professional	9.8	1.6	12.5	2.4	5.7	.8		
Public service	2.1	.5	2.4	.9	.7	.4		
Administration	6.0	1.1	8.0	1.2	3.7	.5		
Miscellaneous professional	1.7	.5	2.2	.9	1.2	.3		
Total outside income-producing activities	7.1	1.2	8.8	1.3	5.2	.9		
Consulting	5.3	1.4	6.7	1.7	4.6	.8		
Publication	1.1	.6	.9	.5	.3	.2		
Other	.7	.5	1.1	.8	.3	.2		
Continuing education and professional enrichment	3.1	.5	2.4	.6	4.6	1.3		

[1] This category of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-6. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Electrical/electronic engineering departments

Activity	All ranks N=2,409		Professor N=1,203		Associate professor N=1,084		sistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	47.6	1.6	49.6	3.7	45.0	2.6		
Total instructional	17.9	1.2	18.2	1.6	15.4	1.9		
Classroom	6.5	.6	5.5	.7	6.5	1.4		
Other	11.4	.7	12.7	1.0	8.9	.9		
Total research	11.1	.9	8.5	1.3	15.1	1.8		
Federal	8.5	.9	5.8	1.3	12.4	1.6		
Non-Federal	.6	.1	.8	.1	.5	.2		
Nonsponsored	2.0	.4	1.9	.3	2.3	1.0		
Total public service, administration and miscellaneous professional	8.0	1.8	10.6	2.7	5.5	1.0		
Public service	1.6	.7	2.1	1.2	1.1	.4		
Administration	5.3	1.1	7.0	1.4	3.8	1.0		
Miscellaneous professional	1.1	.2	1.5	.6	.7	.2		
Total outside income-producing activities	7.3	1.2	9.1	1.8	6.1	1.5		
Consulting	3.9	1.1	4.2	1.4	4.0	1.2		
Publication	2.2	.4	3.1	1.0	1.4	.3		
Other	1.2	.4	1.8	.7	.7	.3		
Continuing education and professional enrichment	3.2	.5	3.2	.6	2.8	1.2		

[1] This category of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-7. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Mechanical engineering departments

Activity	All ranks N=3,269		Professor N=1,761		Associate professor N=1,023		Assistant professor N=485	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.1	2.5	51.5	.8	43.4	7.7	45.8	7.7
Total instructional	19.6	1.6	20.0	2.1	20.3	3.1	17.0	3.5
Classroom	6.2	.4	5.6	.6	7.9	.9	4.8	.8
Other	13.4	1.5	14.4	2.2	12.4	2.4	12.2	3.0
Total research	7.4	.8	9.3	.6	4.1	1.5	7.6	1.4
Federal	4.0	.5	4.1	.5	2.7	1.4	6.2	.9
Non-Federal	1.5	.4	2.6	.8	.2	.2	.0	.0
Nonsponsored	1.9	.4	2.5	.8	1.1	.5	1.4	1.4
Total public service, administration and miscellaneous professional	9.7	1.3	12.4	2.6	6.6	1.5	6.7	1.0
Public service	1.1	.4	.9	.2	1.6	1.1	1.1	.1
Administration	6.5	1.6	9.3	2.8	3.4	1.0	2.6	.7
Miscellaneous professional	2.1	.2	2.2	.7	1.6	.3	3.0	1.5
Total outside income-producing activities	8.7	1.2	7.0	2.0	9.9	2.3	12.1	7.1
Consulting	5.1	1.1	3.4	.9	5.6	1.0	10.3	6.2
Publication	1.8	.5	1.9	.3	1.6	1.8	1.8	1.0
Other	1.8	.5	1.7	1.0	2.7	1.0	.0	.0
Continuing education and professional enrichment	2.7	.5	2.9	.5	2.5	.3	2.4	2.9

SOURCE: National Science Foundation

Table B-8. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Other engineering departments

Activity	All ranks N=4,314		Professor N=1,330		Associate professor N=1,613		Assistant professor N=1,372	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.2	5.9	50.5	2.4	45.2	5.7	49.5	13.4
Total instructional	17.9	1.9	14.5	3.7	17.3	3.8	22.0	4.0
Classroom	6.9	.8	4.3	.9	7.5	2.2	8.9	1.8
Other	11.0	1.3	10.2	2.9	9.8	1.6	13.1	2.8
Total research	12.2	3.2	12.4	1.0	16.5	6.9	7.0	4.9
Federal	8.9	3.1	8.7	.7	13.2	7.1	4.1	3.1
Non-Federal	1.8	.5	1.7	.2	1.3	.5	2.3	1.7
Nonsponsored	1.5	.4	2.0	.5	1.9	.9	.6	.4
Total public service, administration and miscellaneous professional	7.6	1.2	13.8	1.1	4.6	.9	4.9	3.1
Public service	1.7	.5	2.6	.2	1.2	.4	1.5	1.2
Administration	3.7	1.7	6.1	.7	2.5	.7	2.9	4.5
Miscellaneous professional	2.1	.5	5.1	1.5	.9	.3	.6	.3
Total outside income-producing activities	7.1	2.9	5.4	.6	4.4	.8	11.9	9.5
Consulting	2.2	.5	3.8	.7	2.4	.8	.4	.2
Publication	4.8	2.8	1.4	.4	1.9	.6	11.5	9.4
Other	.1	[1]	.2	.1	.1	[1]	[1]	[1]
Continuing education and professional enrichment	3.4	.8	4.5	.4	2.4	.7	3.7	2.2

[1] Less than .05

SOURCE: National Science Foundation

Table B-9. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Earth, environmental, and marine sciences departments

Activity	All ranks N=5,694		Professor N=2,268		Associate professor N=1,771		Assistant professor N=1,656	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	51.4	4.3	46.8	1.2	42.2	4.9	67.6	11.6
Total instructional	18.2	2.7	12.9	2.1	18.0	4.2	25.9	6.2
Classroom	6.0	.5	5.4	1.1	6.7	1.1	6.0	1.0
Other	12.3	2.4	7.5	1.0	11.2	3.4	19.9	5.9
Total research	16.0	2.1	14.6	3.1	11.2	2.7	23.0	9.5
Federal	7.3	2.0	5.4	1.0	5.7	1.9	11.5	10.3
Non-Federal	3.8	.9	6.5	3.2	1.9	1.3	2.0	.9
Nonsponsored	4.9	1.4	2.6	1.0	3.6	.7	9.6	4.6
Total public service, administration and miscellaneous professional	9.1	1.5	12.7	2.5	6.7	1.0	6.7	1.7
Public service	2.0	.5	1.7	.6	2.0	.7	2.3	.8
Administration	5.5	1.4	8.2	2.7	3.9	.3	3.4	.6
Miscellaneous professional	1.6	.4	2.8	.5	.8	.4	.9	1.0
Total outside income-producing activities	2.1	.6	2.6	.7	2.4	.7	1.1	.6
Consulting	.7	.2	.9	.4	.9	.9	.3	.2
Publication	.9	.3	.7	.3	1.4	.7	.5	.5
Other	.5	.3	1.0	.5	.1	.1	.3	.2
Continuing education and professional enrichment	6.0	1.3	4.0	.6	4.0	.5	11.0	4.6

SOURCE: National Science Foundation

Table B-10. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Life sciences departments

Activity	All ranks N=33,292		Professor N=15,070		Associate professor N=11,126		Assistant professor N=7,096	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.3	1.2	48.4	1.8	44.1	2.2	54.7	4.7
Total instructional	15.7	.7	16.6	1.5	16.8	1.9	12.4	2.0
Classroom	5.4	.7	6.0	.5	5.8	.7	3.5	1.8
Other	10.4	.3	10.6	1.0	11.0	1.5	8.9	2.4
Total research	15.0	1.5	13.7	1.1	14.5	1.5	18.4	7.4
Federal	9.6	1.6	7.3	1.0	9.5	1.9	14.7	7.2
Non-Federal	2.5	.4	3.1	.6	1.8	.8	2.2	.7
Nonsponsored	2.8	.3	3.2	.5	3.2	.4	1.4	.4
Total public service, administration and miscellaneous professional	10.2	1.0	10.9	.9	7.0	.3	13.6	4.9
Public service	2.9	.8	2.8	.6	1.5	.5	5.2	3.2
Administration	4.8	.2	5.3	.8	4.0	.8	5.0	1.2
Miscellaneous professional	2.5	1.0	2.9	.8	1.5	.2	7.4	3.4
Total outside income-producing activities	3.0	.5	3.6	.2	2.0	.4	3.6	2.2
Consulting	.7	.1	1.0	.2	.5	.1	.2	.2
Publication	1.6	.2	1.5	.3	1.1	.2	2.6	.9
Other	.7	.6	1.0	.6	.3	.2	.8	2.2
Continuing education and professional enrichment	4.4	.5	3.7	.4	3.8	.5	6.7	1.9

SOURCE: National Science Foundation

Table B-11. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Agricultural sciences departments

Activity	All ranks N=5,767		Professor N=2,270		Associate professor N=1,752		Assistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	46.3	.6	47.1	.9	46.6	2.9		
Total instructional	13.7	1.4	14.0	2.7	13.0	1.4		
Classroom	4.0	.9	3.9	.6	2.7	.5		
Other	9.6	.6	10.1	2.1	10.3	1.0		
Total research	13.2	1.2	11.7	1.2	17.5	2.0		
Federal	5.8	.6	4.1	.9	9.4	1.9		
Non-Federal	4.5	.4	5.4	1.5	4.2	3.0		
Nonsponsored	2.8	.4	2.2	.3	3.9	.9		
Total public service, administration and miscellaneous professional	12.9	1.0	15.8	.7	9.5	1.1		
Public service	4.9	1.1	4.9	.3	4.3	2.2		
Administration	5.0	.3	6.5	.5	3.4	1.1		
Miscellaneous professional	3.0	.6	4.4	.8	1.8	.6		
Total outside income-producing activities	3.9	2.2	3.3	.2	3.5	2.1		
Consulting	.8	.2	.8	.1	.8	.5		
Publication	1.3	.6	1.2	.3	1.1	.6		
Other	1.8	2.4	1.3	.5	1.6	1.3		
Continuing education and professional enrichment	2.7	.2	2.3	.5	3.1	.7		

[1] This category of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-12. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Biological sciences departments

Activity	All ranks N=27,525		Professor N=11,799		Associate professor N=9,375		Assistant professor N=6,352	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.7	1.4	48.8	2.2	43.6	2.8	56.2	4.1
Total instructional	16.2	.7	17.3	1.3	17.5	2.2	12.2	2.4
Classroom	5.7	.7	6.6	.6	6.3	.8	3.1	1.6
Other	10.5	.4	10.7	.8	11.1	1.7	9.2	2.5
Total research	15.3	1.7	14.2	1.6	14.0	1.7	19.4	8.5
Federal	10.4	2.0	8.2	1.1	9.5	2.0	15.8	8.3
Non-Federal	2.1	.5	2.5	1.1	1.4	.7	2.4	.7
Nonsponsored	2.8	.3	3.5	.6	3.1	.4	1.2	.4
Total public service, administration and miscellaneous professional	9.6	1.2	9.6	1.1	6.5	.6	14.2	6.1
Public service	2.4	.8	2.2	.7	.9	.4	5.1	3.6
Administration	4.8	.3	5.0	.9	4.1	.7	5.3	1.7
Miscellaneous professional	2.4	1.2	2.5	.9	1.5	.3	3.8	4.5
Total outside income-producing activities	2.8	.3	3.6	.2	1.7	.4	3.1	1.0
Consulting	.6	.1	1.0	.2	.5	.2	.2	.1
Publication	1.7	.3	1.6	.3	1.1	.3	2.6	1.1
Other	.5	.2	1.0	.6	.1	.1	.3	.3
Continuing education and professional enrichment	4.7	.6	4.1	.4	4.0	.6	7.2	2.0

SOURCE: National Science Foundation

Table B-13. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Mathematical/computer science departments

Activity	All ranks N=13,300		Professor N=4,472		Associate professor N=5,251		Assistant professor N=3,577	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	42.5	0.9	40.9	1.7	46.6	3.5	38.3	2.9
Total instructional	21.1	1.1	16.7	.6	25.7	2.5	19.8	4.1
Classroom	7.2	.7	5.7	.6	8.1	.6	7.7	1.6
Other	13.9	.7	11.0	.5	17.7	2.2	12.2	2.6
Total research	6.1	.5	7.4	1.0	6.4	.9	4.0	1.5
Federal	2.1	.3	2.6	.7	1.5	.6	2.1	1.4
Non-Federal	.4	.1	.3	.1	.6	.2	.3	.2
Nonsponsored	3.6	.3	4.4	.6	4.2	.8	1.6	.7
Total public service, administration and miscellaneous professional	7.3	.9	8.4	.4	7.4	1.8	5.7	1.1
Public service	1.3	.5	.6	.1	1.1	.5	2.7	1.6
Administration	4.6	.6	5.6	.6	5.2	1.6	2.3	.5
Miscellaneous professional	1.4	.3	2.2	.5	1.1	.4	.7	.6
Total outside income-producing activities	2.8	1.0	3.4	1.9	2.6	.9	2.6	1.3
Consulting	1.0	.3	1.7	1.3	.9	.3	.4	.2
Publication	1.1	.5	1.2	.6	1.4	.7	.4	.5
Other	.8	.4	.5	.3	.3	.1	1.8	1.3
Continuing education and professional enrichment	5.1	.7	5.0	.8	4.6	1.1	6.0	1.4

SOURCE: National Science Foundation

Table B-14. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Computer science departments

Activity	All ranks n=2,013		Professor n=373		Associate professor n=781		Assistant professor n=860	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	42.8	2.7	51.1	2.7	45.2	4.6	37.1	4.0
Total instructional	15.2	2.8	18.3	2.8	19.2	3.5	10.2	5.5
Classroom	3.9	.9	6.3	1.3	3.7	.6	3.0	2.0
Other	11.3	2.1	12.0	1.6	15.4	3.0	7.3	3.6
Total research	8.4	1.2	7.0	1.7	9.3	3.2	8.3	3.8
Federal	4.0	1.0	2.5	2.0	5.1	1.5	3.6	1.6
Non-Federal	1.1	.3	.8	4	1.0	.9	1.2	.9
Nonsponsored	3.4	.5	3.6	1.0	3.2	1.6	3.5	2.1
Total public service, administration and miscellaneous professional	11.4	.9	14.9	3.0	8.5	1.7	12.6	3.5
Public service	2.9	1.4	.9	.3	1.3	.4	5.1	3.7
Administration	6.7	.4	10.7	1.3	5.7	1.1	5.8	1.7
Miscellaneous professional	1.9	1.4	3.3	2.2	1.5	1.1	1.7	2.5
Total outside income-producing activities	3.5	.9	5.0	1.1	4.8	1.6	1.8	.7
Consulting	1.7	.3	2.4	.8	1.5	.4	1.6	.8
Publication	1.4	.9	1.8	.9	2.5	1.6	.1	.1
Other	.5	.2	.9	.7	.8	.4	.0	.0
Continuing education and professional enrichment	4.2	.4	6.0	1.1	3.4	.6	4.2	2.1

SOURCE: National Science Foundation

Table B-15. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Mathematics departments

Activity	All ranks N=11,287		Professor N=4,099		Associate professor N=4,470		Assistant professor N=2,717	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	42.4	1.2	40.0	1.9	46.9	4.7	38.6	4.0
Total instructional	22.2	1.1	16.6	.7	26.9	2.5	22.8	3.3
Classroom	7.8	.6	5.7	.7	8.8	.6	9.1	1.1
Other	14.4	.8	10.9	.5	18.1	2.3	13.7	2.3
Total research	5.6	.5	7.4	1.0	5.8	.9	2.7	.9
Federal	1.7	.3	2.7	.8	.9	.5	1.7	1.4
Non-Federal	.3	.1	.3	.1	.5	.1	.0	.0
Nonsponsored	3.6	.4	4.5	.6	4.4	1.1	1.0	1.3
Total public service, administration and miscellaneous professional	6.5	.9	7.8	.6	7.2	2.3	3.5	1.4
Public service	1.1	.6	.5	.1	1.0	.6	1.9	1.8
Administration	4.2	.6	5.2	.7	5.1	1.9	1.2	.4
Miscellaneous professional	1.3	.3	2.1	.5	1.1	.4	.4	.4
Total outside income-producing activities	2.7	1.2	3.2	2.1	2.2	1.1	2.9	1.6
Consulting	.9	.4	1.7	1.4	.8	.3	(1)	(1)
Publication	1.0	.5	1.2	.7	1.2	.8	.4	.6
Other	.8	.4	.4	.4	.2	.2	2.4	1.6
Continuing education and professional enrichment	5.3	.8	4.9	.9	4.8	1.2	6.5	1.8

(1) Less than .05.

SOURCE: National Science Foundation

Table B-16. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

All physical sciences departments

Activity	All ranks N=19,165		Professor N=8,867		Associate professor N=5,803		Assistant professor N=4,496	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.7	3.0	47.3	1.5	43.4	3.2	45.5	7.7
Total instructional	19.1	1.6	19.0	.4	18.1	1.4	20.7	6.8
Classroom	6.8	.3	6.4	.5	6.7	.3	7.6	.9
Other	12.4	1.3	12.6	.6	11.4	1.2	13.0	6.4
Total research	11.7	.9	11.4	.8	12.4	1.5	11.5	2.3
Federal	7.2	1.1	6.9	.6	8.4	1.6	6.4	2.1
Non-Federal	1.2	.3	.6	.2	1.1	.4	2.7	1.3
Nonsponsored	3.3	.4	4.0	.6	2.9	.7	2.5	1.3
Total public service, administration and miscellaneous professional	7.4	.2	8.7	.5	6.0	.5	6.6	.8
Public service	1.1	.2	.9	.1	.6	.2	1.9	.8
Administration	4.8	.3	5.9	.6	4.0	.3	3.8	.5
Miscellaneous professional	1.5	.1	1.9	.2	1.4	.4	.9	.4
Total outside income-producing activities	3.3	.8	3.5	.5	2.5	1.1	3.9	2.6
Consulting	.8	.2	1.0	.3	.6	.2	.7	.8
Publication	2.0	.6	2.2	.5	1.3	.6	2.6	2.1
Other	.4	.2	.3	(1)	.6	.5	.6	.3
Continuing education and professional enrichment	4.2	.2	4.7	.5	4.5	.7	2.7	1.5

(1) Less than .05.

SOURCE: National Science Foundation

Table B-17. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Chemistry departments

Activity	All ranks N=10,913		Professor N=4,662		Associate professor N=2,806		Assistant professor N=3,445	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.6	3.7	49.0	2.8	41.4	3.4	44.3	9.2
Total instructional	20.4	1.2	20.7	1.2	18.6	1.8	21.4	6.5
Classroom	7.5	.4	7.4	.7	7.2	.5	8.0	1.1
Other	12.8	1.2	13.3	1.7	11.3	1.7	13.5	6.5
Total research	10.2	2.5	9.5	2.5	9.3	1.9	11.8	3.8
Federal	5.6	2.4	5.8	2.0	5.3	1.5	5.6	4.5
Non-Federal	1.8	.5	.7	.3	1.7	.8	3.4	1.4
Nonsponsored	2.8	.4	3.0	1.0	2.3	.7	2.8	2.4
Total public service, administration and miscellaneous professional	7.2	.3	8.8	.5	6.1	1.2	6.1	1.5
Public service	.8	.2	.5	.1	.5	.3	1.5	.5
Administration	5.2	.3	6.5	.7	4.6	.8	3.8	.9
Miscellaneous professional	1.2	.2	1.7	.2	.9	.2	.8	.9
Total outside income-producing activities	4.0	1.4	4.7	1.1	3.8	1.9	3.2	3.2
Consulting	1.2	.3	1.6	.5	.9	.2	.9	1.3
Publication	2.4	1.0	3.0	1.1	1.8	.9	2.3	3.0
Other	.4	.3	.2	.1	1.1	1.0	.1	.1
Continuing education and professional enrichment	3.8	.3	5.4	.6	3.7	1.1	1.9	.7

SOURCE: National Science Foundation

Table B-18. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Physics departments

Activity	All ranks N=7,163		Professor N=3,670		Associate professor N=2,731		Assistant professor N=762	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.0	3.4	44.9	1.1	44.8	4.5	46.6	10.8
Total instructional	17.8	2.5	17.8	1.8	18.1	1.5	16.9	10.9
Classroom	5.8	.5	5.5	.6	6.4	.3	5.4	2.5
Other	12.0	2.2	12.2	1.6	11.7	1.5	11.5	9.4
Total research	13.4	1.4	13.1	1.4	14.1	2.2	12.4	8.4
Federal	9.0	1.0	7.8	1.5	10.1	2.3	10.9	9.0
Non-Federal	.4	.1	.4	.1	.5	.2	.7	.6
Nonsponsored	3.9	.5	4.9	.6	3.5	1.6	.9	1.0
Total public service, administration and miscellaneous professional	7.1	1.0	8.3	1.0	5.9	1.1	5.5	3.2
Public service	1.2	.5	1.3	.2	.7	.3	2.5	2.4
Administration	4.2	.5	5.1	.8	3.5	.5	2.3	1.4
Miscellaneous professional	1.7	.4	2.0	.3	1.7	.9	.7	.5
Total outside income-producing activities	2.2	.5	2.1	.5	1.1	.4	6.8	5.9
Consulting	.2	.1	.2	.1	.4	.2	.0	.0
Publication	1.5	.4	1.5	.4	.6	.3	4.7	4.3
Other	.5	.2	.4	.1	.1	(1)	2.1	1.6
Continuing education and professional enrichment	4.5	.7	3.7	.9	5.6	1.3	4.9	3.4

(1) Less than .05

SOURCE: National Science Foundation

Table B-19. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Astronomy departments

Activity	All ranks N=752		Professor N=338		Associate professor N=215		Assistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	51.2	2.3	47.9	2.4	50.8	5.3		
Total instructional	14.8	5.0	9.1	1.0	14.4	7.8		
Classroom	5.5	2.2	2.2	.3	5.1	3.1		
Other	9.3	2.9	6.9	.7	9.2	4.6		
Total research	16.8	5.2	17.8	3.0	25.9	8.4		
Federal	12.0	4.2	12.2	1.3	21.8	6.6		
Non-Federal	.4	.2	.3	.1	1.1	1.1		
Nonsponsored	4.4	1.7	5.3	2.5	3.0	1.4		
Total public service, administration and miscellaneous professional	11.2	3.7	12.4	2.5	4.9	3.9		
Public service	2.9	1.0	1.4	.3	.8	1.1		
Administration	5.0	1.7	5.5	1.6	2.4	2.0		
Miscellaneous professional	3.3	1.5	5.5	2.3	1.8	1.0		
Total outside income-producing activities	2.1	1.2	1.6	.9	4.1	1.3		
Consulting	.1	.1	.3	.2	([2])	.1		
Publication	1.5	1.0	.9	.6	3.2	1.8		
Other	.5	.3	.5	.5	.9	.7		
Continuing education and professional enrichment	6.2	3.1	7.1	3.2	1.4	.6		

[1]This category of faculty members contained too few cases in the sample for stable parameter estimates.

[2]Less than .05.

SOURCE: National Science Foundation

Table B-20. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Other physical sciences departments

Activity	All ranks N=338		Professor[1]		Associate professor[1]		Assistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	50.0	1.9						
Total instructional	16.1	3.9						
Classroom	3.9	1.2						
Other	12.2	4.1						
Total research	15.9	5.1						
Federal	10.5	3.0						
Non-Federal	1.2	1.0						
Nonsponsored	4.3	2.7						
Total public service, administration and miscellaneous professional	9.1	1.8						
Public service	1.0	.7						
Administration	6.5	1.1						
Miscellaneous professional	1.5	.7						
Total outside income-producing activities	5.2	5.9						
Consulting	2.4	2.3						
Publication	1.1	1.1						
Other	2.7	3.5						
Continuing education and professional enrichment	2.6	.7						

[1]These categories of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-21. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Psychology departments

Activity	All ranks N=9,642		Professor N=3,946		Associate professor N=2,446		Assistant professor N=3,249	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	38.6	4.3	44.0	4.4	38.6	3.0	32.1	8.8
Total instructional	14.8	1.7	14.1	1.8	15.5	2.5	15.1	3.2
Classroom	5.4	.7	4.3	1.2	6.4	1.7	6.0	1.9
Other	9.4	1.0	9.8	.7	9.1	1.6	9.1	2.2
Total research	6.1	1.1	6.5	1.9	7.0	1.9	4.9	2.2
Federal	1.8	.7	1.6	.2	2.6	2.0	1.5	1.3
Non-Federal	1.0	.5	1.7	1.2	.5	.3	.8	.7
Nonsponsored	3.2	.6	3.2	.9	4.0	.7	2.8	1.3
Total public service, administration and miscellaneous professional	9.5	1.6	13.0	3.4	8.6	1.6	6.1	2.0
Public service	1.6	.3	2.4	.7	.7	.1	1.2	.3
Administration	5.9	1.3	6.6	2.8	7.4	1.6	4.0	2.0
Miscellaneous professional	2.0	.6	3.9	1.4	.5	.1	.9	.7
Total outside income-producing activities	4.3	1.0	5.5	2.3	3.4	.9	3.6	1.9
Consulting	1.7	.7	2.6	1.8	1.0	.5	1.3	.9
Publication	2.1	.7	2.1	1.0	2.1	1.4	2.2	1.5
Other	.5	.3	.9	.5	.3	.2	.1	.1
Continuing education and professional enrichment	3.8	.6	4.9	1.3	4.1	1.0	2.4	.7

SOURCE: National Science Foundation

Table B-22. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

All social sciences departments

Activity	All ranks N=23,102		Professor N=6,259		Associate professor N=7,936		Assistant professor N=8,907	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	44.3	1.8	48.2	2.3	42.4	2.6	43.4	3.0
Total instructional	18.8	1.0	15.8	1.3	17.9	1.8	21.8	2.0
Classroom	6.2	.6	5.3	.7	6.2	.5	6.8	1.5
Other	12.6	.5	10.5	.6	11.7	1.3	15.0	.9
Total research	8.2	1.1	10.2	1.8	7.9	.9	7.0	1.9
Federal	1.3	.4	1.6	.8	1.4	.4	.9	.6
Non-Federal	1.4	.3	1.4	.3	1.9	.7	1.0	.3
Nonsponsored	5.5	.6	7.2	1.0	4.6	.5	5.1	1.4
Total public service, administration and miscellaneous professional	7.5	.6	10.9	.6	7.9	.7	4.7	.7
Public service	1.6	.2	2.3	.7	1.3	.4	1.3	.3
Administration	4.3	.3	5.9	.5	4.8	.3	2.8	.6
Miscellaneous professional	1.5	.1	2.7	.2	1.7	.2	.5	.3
Total outside income-producing activities	3.5	.3	4.0	.5	4.1	.7	2.5	.7
Consulting	.7	.1	1.1	.3	.6	.1	.4	.1
Publication	2.5	.4	2.5	.4	3.1	.9	2.0	.6
Other	.3	.1	.4	.2	.4	.2	.1	.1
Continuing education and professional enrichment	6.4	.9	7.3	1.9	4.6	.5	7.3	2.0

SOURCE: National Science Foundation

Table B-23. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Economics departments

Activity	All ranks N=5,050		Professor N=1,704		Associate professor N=1,704		Assistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.8	5.5	49.2	3.1	38.6	6.2		
Total instructional	17.3	3.4	13.8	2.6	13.2	3.6		
Classroom	6.1	.4	5.2	1.5	5.3	1.3		
Other	11.3	3.1	8.7	1.3	7.9	2.4		
Total research	12.0	3.4	12.2	5.1	9.9	2.2		
Federal	3.1	2.0	4.8	5.0	1.7	1.6		
Non-Federal	1.6	.8	1.6	.6	1.6	1.1		
Nonsponsored	7.2	1.0	5.8	1.4	6.6	2.3		
Total public service, administration and miscellaneous professional	8.8	1.3	11.9	.7	8.5	2.5		
Public service	2.1	.3	4.2	1.1	.7	.3		
Administration	5.3	1.0	6.2	.8	6.2	1.7		
Miscellaneous professional	1.4	.3	1.5	.6	1.5	.7		
Total outside income-producing activities	2.6	.6	3.6	1.6	3.0	2.0		
Consulting	1.4	.6	2.1	1.1	1.3	.2		
Publication	.8	.2	.6	.4	1.4	1.9		
Other	.4	.2	.9	.4	.3	.4		
Continuing education and professional enrichment	5.1	.7	7.7	1.0	4.1	2.3		

[1] This category of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-24. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Political science departments

Activity	All ranks N=5,007		Professor N=1,580		Associate professor N=1,452		Assistant professor[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	43.0	1.4	44.1	4.9	45.5	4.4		
Total instructional	19.6	2.8	16.4	2.9	18.7	3.3		
Classroom	6.0	.6	5.8	1.1	7.7	1.8		
Other	13.6	2.9	10.6	2.5	11.0	1.9		
Total research	7.5	1.6	9.8	2.4	7.5	2.5		
Federal	.8	.5	.4	.3	.6	.5		
Non-Federal	1.0	.6	1.3	.7	1.8	1.7		
Nonsponsored	5.6	1.3	8.1	2.3	5.1	1.3		
Total public service, administration and miscellaneous professional	6.4	.8	9.5	1.2	7.6	1.1		
Public service	1.3	.5	1.0	.3	1.3	.2		
Administration	3.6	.3	5.5	1.1	5.3	.7		
Miscellaneous professional	1.4	.4	3.0	.9	1.0	.4		
Total outside income-producing activities	3.6	.8	3.5	2.1	6.0	1.0		
Consulting	.4	.1	.4	.3	.9	.3		
Publication	2.8	.8	2.6	1.9	4.4	1.3		
Other	.4	.1	.5	.3	.7	.6		
Continuing education and professional enrichment	5.9	2.4	5.0	1.7	5.8	1.4		

[1] This category of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-25. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Sociology departments

Activity	All ranks N=7,517		Professor N=1,912		Associate professor N=2,531		Assistant professor N=3,074	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	44.7	1.9	48.8	3.0	44.6	3.7	42.4	3.3
Total instructional	19.3	2.7	16.7	3.1	22.2	3.2	18.7	4.9
Classroom	5.9	1.8	4.8	1.6	7.2	1.7	5.5	2.6
Other	13.4	.9	11.9	1.8	15.0	1.8	13.1	2.6
Total research	5.6	.9	7.1	1.8	6.0	1.2	4.3	1.9
Federal	.4	.2	.2	.2	1.1	.6	.0	.0
Non-Federal	1.0	.2	1.2	.6	.7	.2	1.1	.7
Nonsponsored	4.2	.9	5.7	1.6	4.3	.8	3.2	1.6
Total public service, administration and miscellaneous professional	7.4	.9	9.9	2.4	7.0	1.6	6.0	2.1
Public service	1.3	.3	1.1	.5	1.6	.8	1.2	.3
Administration	4.3	.5	5.0	1.2	3.8	.8	4.3	2.1
Miscellaneous professional	1.7	.3	3.8	1.5	1.7	.5	.5	.5
Total outside income-producing activities	4.4	1.1	4.8	1.1	5.1	1.6	3.7	1.5
Consulting	.5	.1	.6	.3	.4	.3	.4	.3
Publication	3.8	1.1	4.3	.8	4.3	1.6	3.0	1.8
Other	.2	.1	.0	.0	.4	.2	.2	.2
Continuing education and professional enrichment	8.0	1.6	10.2	4.2	4.4	1.1	9.7	4.5

SOURCE: National Science Foundation

Table B-26. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by academic rank: 1978/79

Other social sciences departments

Activity	All ranks N=5,527		Professor N=1,063		Associate professor N=2,249		Assistant professor N=2,215	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	43.5	2.5	51.4	5.6	40.7	3.8	42.7	6.8
Total instructional	18.8	2.2	16.4	1.1	16.0	1.8	22.8	4.8
Classroom	6.8	1.2	5.5	1.7	4.7	.6	9.6	2.6
Other	12.0	1.5	10.9	1.6	11.3	1.8	13.3	2.3
Total research	8.8	1.4	13.1	4.2	8.7	2.9	6.8	2.6
Federal	1.2	.6	1.2	.6	2.1	.7	.3	.5
Non-Federal	2.1	1.2	1.3	.9	3.6	2.5	1.0	.4
Nonsponsored	5.5	1.0	10.6	4.6	3.0	.9	5.5	2.4
Total public service, administration and miscellaneous professional	7.3	1.5	12.9	1.9	8.7	1.6	3.1	2.2
Public service	1.7	.8	3.3	3.3	1.6	1.0	1.2	1.2
Administration	4.1	1.1	7.5	3.8	4.7	.9	1.8	1.0
Miscellaneous professional	1.5	.5	2.1	.4	2.5	.6	.2	.5
Total outside income-producing activities	2.8	1.0	3.8	1.7	2.6	.7	2.6	3.6
Consulting	.6	.2	1.3	.7	.3	.2	.6	.8
Publication	2.1	.9	2.3	1.6	2.1	.8	2.0	2.7
Other	.1	.1	.2	.4	.2	.2	.0	.0
Continuing education and professional enrichment	5.8	1.1	5.2	1.0	4.6	.9	7.4	3.8

SOURCE: National Science Foundation

Table B-27. Professional activity of science/engineering (S/E) faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

All S/E departments

Activity	All institutions N=118,540		Public institutions N=84,400		Private institutions N=34,140		Doctorate institutions N=66,950		Nondoctorate institutions N=51,590	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.8	0.4	47.1	0.5	42.6	0.5	48.2	0.3	42.7	0.7
Total instructional	17.8	.3	17.6	.3	18.4	.6	14.9	.4	21.6	.6
Classroom	6.1	.3	6.1	.2	6.2	.4	4.3	.4	8.4	.3
Other	11.7	.2	11.5	.2	12.3	.2	10.5	.1	13.2	.3
Total research	11.0	.2	11.9	.3	8.7	.3	15.6	.3	5.0	.3
Federal	5.7	.3	6.2	.4	4.4	.4	9.4	.6	.9	.2
Non-Federal	1.7	.3	2.0	.3	.8	.2	2.2	.4	1.1	.2
Nonsponsored	3.5	.2	3.6	.2	3.4	.2	4.0	.2	3.0	.3
Total public service, administration and miscellaneous professional	8.6	.2	8.9	.3	7.8	.3	9.5	.2	7.4	.4
Public service	1.8	.3	2.0	.4	1.4	.2	1.6	.3	2.1	.6
Administration	4.9	.2	4.9	.2	4.7	.3	5.3	.3	4.3	.3
Miscellaneous professional	1.9	.3	2.0	.3	1.6	.4	2.6	.5	1.0	.1
Total outside income-producing activities	3.7	.3	3.9	.4	3.3	.3	4.2	.1	3.1	.6
Consulting	1.2	.1	1.2	.1	1.2	.2	1.2	.1	1.2	.2
Publication	1.9	.2	2.1	.3	1.5	.2	2.4	.3	1.3	.2
Other	.6	.2	.6	.3	.5	.2	.6	.2	.7	.4
Continuing education and professional enrichment	4.7	.2	4.8	.2	4.4	.5	4.1	.2	5.5	.5

SOURCE: National Science Foundation

Table B-28. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

All engineering departments

Activity	All institutions N=14,343		Public institutions N=11,238		Private institutions N=3,105		Doctorate institutions N=9,663		Nondoctorate institutions N=4,680	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.0	1.5	48.6	1.9	45.9	1.5	49.1	.9	46.0	2.7
Total instructional	18.0	.6	17.9	.8	18.3	1.3	15.5	.6	23.2	.7
Classroom	6.3	.6	6.3	.7	6.4	.6	4.6	.4	9.8	.2
Other	11.7	.3	11.6	.4	11.9	.9	10.8	.4	13.3	.7
Total research	10.9	1.2	11.5	1.5	9.0	1.2	14.7	.8	3.2	1.2
Federal	7.3	1.2	7.7	1.5	5.8	.5	10.1	1.3	1.5	.5
Non-Federal	1.8	.3	2.0	.3	1.1	.3	2.2	.3	.9	.6
Nonsponsored	1.9	.3	1.8	.3	2.1	.6	2.4	.4	.8	.3
Total public service, administration and miscellaneous professional	8.7	.6	8.8	.7	8.4	.3	10.0	.9	6.0	1.1
Public service	1.5	.3	1.6	.3	1.4	.4	1.7	.3	1.2	.5
Administration	5.3	.6	5.5	.7	4.6	.2	6.1	.6	3.6	1.6
Miscellaneous professional	1.8	.2	1.7	.2	2.4	.2	2.1	.2	1.2	.2
Total outside income-producing activities	7.3	.8	7.3	.9	7.2	1.0	5.8	.5	10.3	2.7
Consulting	3.8	.3	3.7	.4	4.1	.7	3.3	.4	4.8	.9
Publication	2.6	.8	2.6	1.0	2.4	.6	1.7	.3	4.4	2.5
Other	.9	.1	1.0	.2	.7	.3	.8	.2	1.2	.3
Continuing education and professional enrichment	3.1	.3	3.1	.4	3.0	.3	3.0	.1	3.2	.7

SOURCE: National Science Foundation

Table B-29. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Aeronautical/astronautical engineering departments

Activity	All institutions N=631		Public institutions N=475		Private institutions N=156		Doctorate institutions N=325		Nondoctorate institutions N=307	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	46.1	3.3	46.5	1.0	44.8	12.2	46.0	1.1	46.2	11.5
Total instructional	19.4	4.5	18.3	4.2	22.9	11.1	19.0	4.4	19.9	15.8
Classroom	6.3	.6	5.4	.7	9.2	1.1	5.4	.8	7.3	2.0
Other	13.1	4.5	12.9	3.7	13.6	12.1	13.5	3.8	12.6	14.6
Total research	10.6	1.2	12.9	.9	3.6	1.1	13.6	.7	7.4	5.2
Federal	9.0	1.5	10.8	1.6	3.3	1.2	10.7	.8	7.1	.3
Non-Federal	.5	.4	.7	.6	.0	.0	1.0	.7	.0	.0
Nonsponsored	1.1	.5	1.4	.8	.2	.2	1.8	.6	.4	.4
Total public service, administration and miscellaneous professional	6.9	1.4	7.1	2.0	6.2	1.8	6.6	1.3	7.2	2.9
Public service	.5	.2	.6	.3	.3	.3	.2	.8	.1	.3
Administration	4.5	1.4	4.7	2.0	4.1	1.5	4.6	1.2	4.5	3.0
Miscellaneous professional	1.9	.5	1.9	.5	1.8	.7	1.2	.5	2.6	.8
Total outside income-producing activities	5.9	1.9	5.3	2.6	7.8	.8	4.4	3.0	7.5	1.4
Consulting	2.5	1.3	1.5	1.7	5.4	1.7	3.1	2.1	1.9	1.6
Publication	.3	.2	.4	.3	.0	.0	.6	.3	.0	.0
Other	3.1	1.7	3.3	2.3	2.3	2.1	.7	.6	5.6	2.5
Continuing education and professional enrichment	3.3	.7	2.9	.8	4.4	2.2	2.5	.9	4.1	1.5

SOURCE National Science Foundation

Table B-30. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Chemical engineering departments

Activity	All institutions N=1,072		Public institutions N=801		Private institutions N=271		Doctorate institutions N=984		Nondoctorate institutions N=88	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	50.0	1.1	50.0	.5	49.9	3.9	49.9	1.1	51.2	3.9
Total instructional	14.7	1.0	14.1	.5	16.4	3.7	13.8	1.0	24.6	3.9
Classroom	4.4	.6	4.0	.7	5.7	.8	4.0	.7	9.8	.8
Other	10.2	.8	10.1	.8	10.7	3.0	9.8	.8	14.8	3.6
Total research	18.1	3.0	20.2	3.4	12.0	3.0	19.3	3.3	5.5	1.8
Federal	15.1	3.5	17.2	4.1	8.8	2.9	16.2	3.9	3.3	1.6
Non-Federal	1.4	.4	1.5	.5	1.1	.3	1.4	.4	.6	.4
Nonsponsored	1.7	.6	1.5	.7	2.2	.4	1.7	.6	1.6	.6
Total public service, administration and miscellaneous professional	10.2	1.7	9.3	1.8	12.9	2.4	10.0	1.8	12.6	2.4
Public service	1.2	.3	.9	.3	1.9	.6	1.1	.3	2.0	1.1
Administration	6.9	1.2	6.7	1.6	7.5	.9	6.7	1.3	10.0	1.9
Miscellaneous professional	2.1	.7	1.6	.4	3.5	2.3	2.2	.7	.6	.2
Total outside income-producing activities	5.0	1.0	4.7	1.3	5.7	.9	5.0	1.1	4.0	1.1
Consulting	2.9	.5	2.4	.6	4.4	.9	3.0	.5	1.9	.8
Publication	1.7	.5	1.8	.6	1.3	.3	1.7	.5	1.7	.7
Other	.4	.2	.6	.3	.0	.0	.4	2	.4	.5
Continuing education and professional enrichment	2.0	.3	1.7	.2	2.8	1.1	1.8	.3	4.6	1.3

SOURCE National Science Foundation

Table B-31. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Civil engineering departments

Activity	All institutions N=2,649		Public institutions N=2,200		Private institutions N=449		Doctorate institutions N=1,981		Nondoctorate institutions N=668	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	47.4	1.9	48.3	1.8	43.0	2.1	45.9	.8	51.8	4.6
Total instructional	17.2	3.0	17.6	3.5	14.9	2.0	15.2	1.8	23.1	4.2
Classroom	6.2	1.8	6.5	2.0	4.6	.7	4.9	.5	10.0	2.4
Other	11.0	1.4	11.2	1.7	10.3	1.4	10.3	1.3	13.1	2.3
Total research	10.3	1.7	10.1	1.9	10.8	2.9	11.6	1.1	6.2	3.4
Federal	4.1	1.1	3.6	1.1	6.1	1.7	5.2	.9	.6	.5
Non-Federal	3.7	1.1	4.1	1.3	2.0	1.3	3.4	1.2	4.7	3.3
Nonsponsored	2.5	.6	2.4	.7	2.7	.7	3.0	.5	.9	.4
Total public service, administration and miscellaneous professional	9.8	1.6	9.8	2.0	9.5	1.9	10.6	2.0	7.5	2.9
Public service	2.1	.5	2.1	.6	1.9	.5	2.2	.4	1.6	1.3
Administration	6.0	1.1	6.5	1.4	3.9	.8	6.3	1.4	5.2	1.4
Miscellaneous professional	1.7	.5	1.3	.4	3.7	1.8	2.0	.5	.7	.6
Total outside income-producing activities	7.1	1.2	7.3	1.1	6.2	2.5	5.8	.7	11.2	2.3
Consulting	5.3	1.4	5.4	1.5	4.9	2.1	3.5	.7	10.8	2.1
Publication	1.1	.6	1.1	.7	1.1	.3	1.3	.7	.3	.3
Other	.7	.5	.8	.6	.2	.2	.9	.7	.2	.2
Continuing education and professional enrichment	3.1	.5	3.3	.7	1.6	.5	2.8	.6	3.9	1.7

SOURCE: National Science Foundation

Table B-32. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Electrical/electronics engineering departments

Activity	All institutions N=2,409		Public institutions N=1,616		Private institutions N=792		Doctorate institutions N=1,629		Nondoctorate institutions N=780	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	47.6	1.6	48.0	1.8	46.8	2.7	49.5	1.6	43.6	2.3
Total instructional	17.9	1.2	19.8	1.4	14.1	1.8	16.8	1.0	20.2	3.0
Classroom	6.5	.6	7.4	.7	4.7	.8	5.8	.6	7.9	1.1
Other	11.4	.7	12.4	.8	9.4	1.1	11.0	.7	12.3	1.9
Total research	11.1	.9	11.9	1.0	9.4	1.7	13.3	1.3	6.4	2.4
Federal	8.5	.9	9.8	1.0	5.8	1.6	10.4	1.2	4.5	1.6
Non-Federal	.6	.1	.5	.1	.8	.2	.7	.2	.4	.3
Nonsponsored	2.0	.4	1.6	.4	2.7	.8	2.2	.5	1.6	.8
Total public service, administration and miscellaneous professional	8.0	1.8	8.7	2.1	6.6	1.7	9.6	2.4	4.7	1.0
Public service	1.6	.7	1.7	1.0	1.3	.3	1.7	1.0	1.3	.3
Administration	5.3	1.1	6.3	1.2	3.3	1.2	6.5	1.5	2.8	1.1
Miscellaneous professional	1.1	.3	.6	(*)	2.1	1.1	1.4	.5	.5	.3
Total outside income-producing activities	7.3	1.2	4.7	.6	12.7	4.4	6.5	.6	9.0	5.1
Consulting	3.9	1.1	2.7	.4	6.5	3.4	2.9	.2	6.2	4.4
Publication	2.2	.4	.9	.2	4.9	1.4	2.5	.6	1.6	.6
Other	1.2	.4	1.2	.3	1.3	.9	1.2	.3	1.3	1.2
Continuing education and professional enrichment	3.2	.5	2.9	.6	4.0	1.0	3.3	.7	3.2	1.4

*Less than .05

SOURCE: National Science Foundation

Table B-33. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Mechanical engineering departments

Activity	All institutions N=3,269		Public institutions N=2,587		Private institutions N=682		Doctorate institutions N=2,180		Nondoctorate institutions N=1,089	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.1	2.5	48.4	3.2	46.8	5.4	50.7	2.5	43.2	6.3
Total instructional	19.6	1.6	18.9	2.1	22.4	2.4	18.4	2.6	22.1	3.9
Classroom	6.2	.4	5.9	.5	7.4	1.0	4.7	.3	9.3	1.2
Other	13.4	1.5	13.0	2.0	15.0	1.6	13.7	2.3	12.8	2.8
Total research	7.4	.8	7.7	.8	6.3	2.6	10.4	1.2	1.5	.8
Federal	4.0	.5	4.3	.6	2.9	1.7	5.7	.7	.6	.4
Non-Federal	1.5	.4	1.5	.5	1.3	.7	2.1	.7	.3	.4
Nonsponsored	1.9	.4	1.9	.5	2.0	1.0	2.6	.7	.5	.3
Total public service, administration and miscellaneous professional	9.7	1.3	9.3	1.8	11.3	1.5	11.3	1.9	6.6	1.4
Public service	1.1	.4	.9	.2	2.1	1.4	1.5	.6	.5	.1
Administration	6.5	1.6	6.3	2.0	7.1	1.6	7.8	2.3	3.8	1.3
Miscellaneous professional	2.1	.2	2.1	.2	2.1	.4	2.0	.1	2.4	.5
Total outside income-producing activities	8.7	1.2	9.7	1.7	4.5	.9	7.8	1.6	10.4	1.5
Consulting	5.1	1.1	5.6	1.3	3.1	.7	4.4	1.5	6.6	1.0
Publication	1.8	.5	2.1	.7	.8	.5	1.9	.2	1.5	1.3
Other	1.8	.5	2.1	.7	.6	.4	1.5	.5	2.3	.6
Continuing education and professional enrichment	2.7	.5	2.8	.6	2.3	1.0	2.8	.7	2.6	.5

SOURCE: National Science Foundation

Table B-34. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Other engineering departments

Activity	All institutions N=4,314		Public institutions N=3,560		Private institutions N=754		Doctorate institutions N=2,565		Nondoctorate institutions N=1,749	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.2	5.9	49.0	7.1	44.7	2.3	49.5	2.0	46.3	10.3
Total instructional	17.9	1.9	17.3	2.3	20.6	4.7	12.6	3.0	25.7	4.4
Classroom	6.9	.8	6.7	1.0	7.9	2.6	3.9	1.4	11.4	1.5
Other	11.0	1.3	10.6	1.6	12.6	2.2	8.7	1.7	14.3	2.8
Total research	12.2	3.2	12.7	3.7	10.0	3.5	19.9	3.7	.9	.4
Federal	8.9	3.1	9.2	3.5	7.5	3.3	15.0	4.2	.1	.1
Non-Federal	1.8	.5	1.9	.6	.8	.4	2.8	.8	.2	.1
Nonsponsored	1.5	.4	1.5	.4	1.7	1.3	2.1	.6	.6	.3
Total public service, administration and miscellaneous professional	7.6	1.2	7.9	1.4	6.0	2.2	9.2	.7	5.1	3.0
Public service	1.7	.5	2.0	.6	.6	.4	1.9	.2	1.5	.9
Administration	3.7	1.7	3.8	2.0	3.3	.8	4.4	.3	2.8	3.8
Miscellaneous professional	2.1	.5	2.1	.6	2.2	1.2	2.9	.8	.9	.2
Total outside income-producing activities	7.1	2.9	7.6	3.5	4.8	1.1	4.2	.7	11.3	6.9
Consulting	2.2	.5	2.3	.6	1.7	.6	2.7	.7	1.5	.5
Publication	4.8	2.8	5.2	3.4	2.8	1.6	1.4	.2	9.8	6.9
Other	.1	(*)	.1	(*)	.2	.2	.2	(*)	.1	(*)
Continuing education and professional enrichment	3.4	.8	3.5	.9	3.3	1.1	3.6	.6	3.2	1.6

*Less than .05

SOURCE: National Science Foundation

Table B-35. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Earth, environmental, and marine sciences departments

Activity	All institutions N=5,694		Public institutions N=5,040		Private institutions N=654		Doctorate institutions N=3,591		Nondoctorate institutions N=2,104	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	51.4	4.3	52.5	4.8	43.4	5.1	49.7	4.2	54.4	9.7
Total instructional	18.2	2.7	18.3	3.1	18.1	2.5	13.7	1.6	25.9	6.2
Classroom	6.0	.5	6.0	.5	6.1	1.6	5.1	.6	7.5	.6
Other	12.3	2.4	12.3	2.8	11.9	1.0	8.7	1.2	18.4	6.2
Total research	16.0	2.1	16.8	2.4	10.1	4.5	18.8	3.3	11.3	2.8
Federal	7.3	2.0	7.4	2.4	6.5	4.0	11.1	2.9	.8	1.5
Non-Federal	3.8	.9	4.2	1.0	.3	(')	4.7	1.3	2.1	1.1
Nonsponsored	4.9	1.4	5.2	1.5	3.2	.9	2.9	.8	8.4	3.1
Total public service, administration and miscellaneous professional	9.1	1.5	9.2	1.6	8.5	2.3	10.8	2.0	6.2	1.1
Public service	2.0	.5	2.1	.5	1.2	.5	2.0	.6	2.1	.7
Administration	5.5	1.4	5.7	1.6	3.6	.9	6.6	2.0	3.6	.8
Miscellaneous professional	1.6	.4	1.3	.4	3.6	1.4	2.2	.4	.6	.7
Total outside income-producing activities	2.1	.6	1.9	.7	3.2	1.5	1.9	.5	2.3	1.8
Consulting	.7	.2	.5	.1	2.3	1.3	.7	.2	.7	.6
Publication	.9	.3	.9	.3	.7	.3	1.1	.4	.4	.4
Other	.5	.3	.5	.3	.2	.2	.1	.1	1.2	1.4
Continuing education and professional enrichment	6.0	1.3	6.3	1.5	3.6	1.8	4.4	.6	8.7	3.6

SOURCE: National Science Foundation

Table B-36. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Life science departments

Activity	All institutions N=33,292		Public institutions N=23,792		Private institutions N=9,500		Doctorate institutions N=22,835		Nondoctorate institutions N=10,458	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.3	1.2	49.9	1.4	44.2	1.9	50.6	.9	43.2	3.6
Total instructional	15.7	.7	15.1	.6	17.3	1.6	13.4	.5	21.0	1.5
Classroom	5.4	.7	5.2	.7	5.8	1.3	4.1	.8	8.2	.9
Other	10.4	.3	9.9	.3	11.5	.5	9.2	.3	12.8	.7
Total research	15.0	1.5	15.8	1.9	12.8	1.1	18.8	2.1	6.5	.4
Federal	9.6	1.6	10.2	2.1	8.2	1.7	13.4	2.3	1.2	.6
Non-Federal	2.5	.4	2.9	.4	1.4	.7	2.8	.5	1.7	.5
Nonsponsored	2.8	.3	2.7	.3	3.2	.8	2.5	.3	3.5	.7
Total public service, administration and miscellaneous professional	10.2	1.0	11.4	1.3	7.1	.6	11.0	1.2	8.5	2.0
Public service	2.9	.8	3.4	1.1	1.4	.4	2.2	.5	4.3	2.0
Administration	4.8	.2	5.0	.2	4.3	.7	5.4	.2	3.6	.5
Miscellaneous professional	2.5	1.0	3.0	1.4	1.4	.5	3.4	1.5	.6	.1
Total outside income-producing activities	3.0	.5	3.1	.6	2.9	.8	3.6	.3	1.7	1.4
Consulting	.7	.1	.6	.2	.9	.3	.8	.2	.3	(')
Publication	1.6	.2	1.6	.2	1.8	.8	2.1	.4	.6	.2
Other	.7	.6	1.0	.8	.2	.1	.7	.3	.9	1.6
Continuing education and professional enrichment	4.4	.5	4.5	.6	4.2	.9	3.9	.4	5.5	1.6

SOURCE: National Science Foundation

Table B-37. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Agricultural sciences departments

Activity	All institutions N=5,767		Public institutions N=5,495		Private institutions N=272		Doctorate institutions N=4,999		Nondoctorate institutions N=768	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	46.3	.6	46.3	.6	46.7	1.0	46.7	.5	44.1	1.1
Total instructional	13.7	1.4	14.0	1.4	7.5	.9	12.7	1.5	19.8	5.8
Classroom	4.0	.9	4.2	.9	1.6	.6	3.8	1.0	5.8	2.6
Other	9.6	.6	9.8	.6	5.9	.5	9.0	.6	14.0	3.6
Total research	13.2	1.2	13.2	1.3	11.9	1.3	14.7	.6	3.2	1.4
Federal	5.8	.6	6.0	.6	2.7	3.8	6.6	.3	.5	.6
Non-Federal	4.5	.4	4.6	.4	2.5	.9	5.0	.2	1.4	.7
Nonsponsored	2.8	.4	2.7	.3	6.8	3.6	3.1	.4	1.3	.5
Total public service, administration and miscellaneous professional	12.9	1.0	12.6	1.0	20,.5	2.1	13.6	1.0	8.7	1.8
Public service	4.9	1.1	4.4	1.0	14.3	5.3	5.2	1.2	2.6	.9
Administration	5.0	.3	5.1	.2	4.0	2.9	5.0	.2	4.7	1.5
Miscellaneous professional	3.0	.6	3.1	.6	2.2	2.0	3.3	.6	1.3	.6
Total outside income-producing activities	3.9	2.2	4.0	2.3	1.5	.7	3.1	.7	8.8	8.7
Consulting	.8	.2	.8	.2	.5	.2	.9	.2	.4	.3
Publication	1.3	.6	1.3	.6	.7	.6	1.4	.7	.5	.3
Other	1.8	2.4	1.9	2.5	.2	.3	.9	.2	7.9	9.0
Continuing education and professional enrichment	2.7	.2	2.6	.2	5.3	1.2	2.5	.2	3.6	.3

SOURCE: National Science Foundation

Table B-38. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Biological sciences departments

Activity	All institutions N=27,525		Public institutions N=16,297		Private institutions N=9,228		Doctorate institutions N=17,836		Nondoctorate institutions N=9,690	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.7	1.4	51.0	1.7	44.2	1.9	51.7	1.1	43.1	4.1
Total instructional	16.2	.7	15.5	.5	17.6	1.6	13.5	.4	21.1	1.5
Classroom	5.7	.7	5.5	.7	5.9	1.3	4.2	.8	8.4	.8
Other	10.5	.4	9.9	.5	11.7	.5	9.3	.5	12.7	.7
Total research	15.3	1.7	16.6	2.4	12.8	1.2	20.0	2.4	6.7	.3
Federal	10.4	2.0	11.4	2.6	8.3	1.8	15.4	2.8	1.3	.7
Non-Federal	2.1	.5	2.4	.5	1.4	.7	2.3	.7	1.8	.6
Nonsponsored	2.8	.3	2.7	.4	3.1	.8	2.4	.3	3.7	.9
Total public service, administration and miscellaneous professional	9.6	1.2	11.1	1.8	6.7	.7	10.2	1.7	8.5	2.1
Public service	2.4	.8	3.1	1.2	1.0	.6	1.3	.5	4.4	2.1
Administration	4.8	.3	5.0	.3	4.3	.8	5.5	.3	3.5	.5
Miscellaneous professional	2.4	1.2	2.9	1.7	1.4	.5	3.4	1.9	.6	.2
Total outside income-producing activities	2.8	.3	2.8	.2	2.9	.8	3.7	.5	1.2	.3
Consulting	.6	.1	.5	.2	.9	.3	.8	.2	.3	(*)
Publication	1.7	.3	1.6	.1	1.8	.8	2.3	.4	.6	.2
Other	.5	.2	.7	.4	.2	.2	.6	.4	.3	.1
Continuing education and professional enrichment	4.7	.6	5.0	.7	4.1	.9	4.2	.4	5.6	1.7

*Less than .05

SOURCE: National Science Foundation

Table B-39. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Mathematical/computer sciences departments

Activity	All institutions N=13,300		Public institutions N=9,125		Private institutions N=4,175		Doctorate institutions N=6,251		Nondoctorate institutions N=7,049	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	42.5	.9	42.7	.8	41.9	1.8	40.6	1.5	44.1	1.3
Total instructional	21.1	1.1	21.0	.9	21.4	2.5	16.7	.8	25.0	1.6
Classroom	7.2	.7	7.2	.7	7.2	1.4	4.9	.4	9.2	.9
Other	13.9	.7	13.8	.7	14.2	1.3	11.8	1.1	15.9	1.1
Total research	6.1	.5	6.7	.4	4.7	1.5	9.6	.7	2.9	.8
Federal	2.1	.3	2.2	.4	1.9	.5	3.3	.4	1.0	.4
Non-Federal	.4	.1	.6	.1	.1	(1)	.6	.1	.2	(1)
Nonsponsored	3.6	.3	4.0	.3	2.7	1.0	5.7	.9	1.7	.5
Total public service, administration and miscellaneous professional	7.3	.9	7.4	1.4	7.1	.8	7.2	1.8	7.4	.8
Public service	1.3	.5	1.2	.5	1.6	1.0	1.1	.5	1.6	.8
Administration	4.6	.6	4.9	1.0	3.8	.4	4.5	1.5	4.6	.3
Miscellaneous professional	1.4	.3	1.2	.4	1.7	.8	1.6	.3	1.2	.5
Total outside income-producing activities	2.8	1.0	2.5	1.4	3.5	.9	2.9	1.1	2.8	1.6
Consulting	1.0	.3	1.1	.4	.8	.3	.8	.2	1.3	.5
Publication	1.1	.5	1.0	.7	1.1	.4	1.2	1.0	.9	.6
Other	.8	.4	.4	.2	1.5	1.1	.9	.7	.7	.2
Continuing education and professional enrichment	5.1	.7	5.0	.7	5.3	1.3	4.2	.6	5.9	1.1

(1) Less than .05.

SOURCE: National Science Foundation

Table B-40. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Computer science departments

Activity	All institutions N=2,013		Public institutions N=1,432		Private institutions N=581		Doctorate institutions N=1,281		Nondoctorate institutions N=732	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	42.8	2.7	43.2	3.2	42.1	3.2	40.1	3.5	47.6	2.7
Total instructional	15.2	2.8	15.2	3.5	15.1	4.0	10.3	1.7	23.7	4.3
Classroom	3.9	.9	3.8	.6	4.1	2.0	2.4	.3	6.4	1.4
Other	11.3	2.1	11.5	3.0	10.9	2.1	7.9	1.4	17.3	3.7
Total research	8.4	1.2	8.7	1.0	7.9	2.8	9.7	1.6	6.3	3.0
Federal	4.0	1.0	3.5	.8	5.2	2.0	4.1	.9	3.7	2.4
Non-Federal	1.1	.3	1.5	.5	.1	.1	1.4	.4	.4	.5
Nonsponsored	3.4	.5	3.7	.3	2.6	1.4	4.1	.5	2.2	1.2
Total public service, administration and miscellaneous professional	11.4	.9	12.3	1.1	9.3	1.7	11.5	1.1	11.4	2.3
Public service	2.9	1.4	3.7	1.9	.7	.3	3.9	2.1	1.0	.2
Administration	6.7	.4	6.9	.5	6.2	1.1	6.0	.9	7.9	1.0
Miscellaneous professional	1.9	1.4	1.7	2.0	2.4	.8	1.5	2.0	2.6	.6
Total outside income-producing activities	3.5	.9	3.0	1.4	4.9	1.2	4.7	2.0	1.5	.6
Consulting	1.7	.3	1.3	.1	2.6	.9	2.2	.4	.8	.4
Publication	1.4	.9	1.2	1.1	1.7	.9	2.0	1.8	.3	.2
Other	.5	.2	.4	.4	.6	.4	.5	.3	.4	.5
Continuing education and professional enrichment	4.2	.4	3.9	.7	5.0	1.0	4.0	.5	4.7	.8

SOURCE: National Science Foundation

Table B-41. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Mathematics departments

Activity	All institutions N=11,287		Public institutions N=7,693		Private institutions N=3,594		Doctorate institutions N=4,970		Nondoctorate institutions N=6,317	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	42.4	1.2	42.6	1.2	41.9	2.1	40.7	2.5	43.7	1.6
Total instructional	22.2	1.1	22.1	.9	22.4	2.5	18.3	1.5	25.2	1.6
Classroom	7.8	.6	7.8	.5	7.6	1.5	5.6	.4	9.5	.8
Other	14.4	.8	14.3	1.0	14.7	1.3	12.8	1.8	15.7	1.1
Total research	5.6	.5	6.3	.5	4.2	1.4	9.6	.5	2.5	.8
Federal	1.7	.3	1.9	.4	1.3	.3	3.1	.5	.6	.4
Non-Federal	.3	.1	.4	.1	.1	(1)	.4	.2	.2	(1)
Nonsponsored	3.6	.4	4.0	.4	2.8	1.1	6.1	.9	1.7	.5
Total public service, administration and miscellaneous professional	6.5	.9	6.4	1.3	6.7	.8	6.1	1.8	6.9	.8
Public service	1.1	.6	.8	.5	1.7	1.2	.3	.1	1.7	.9
Administration	4.2	.6	4.5	1.0	3.4	.3	4.2	1.5	4.2	.3
Miscellaneous professional	1.3	.3	1.1	.4	1.6	.9	1.6	.4	1.0	.5
Total outside income-producing activities	2.7	1.2	2.5	1.6	3.2	1.0	2.4	1.0	3.0	1.9
Consulting	.9	.4	1.1	.5	.6	.5	.4	.3	1.3	.6
Publication	1.0	.5	1.0	.7	1.0	.3	1.0	.8	1.0	.7
Other	.8	.4	.4	.2	1.7	1.2	1.0	.8	.7	.3
Continuing education and professional enrichment	5.3	.8	5.2	.8	5.3	1.5	4.3	.6	6.0	1.2

(1) Less than .05.

SOURCE: National Science Foundation

Table B-42. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

All physical sciences departments

Activity	All institutions N=19,165		Public institutions N=12,977		Private institutions N=6,189		Doctorate institutions N=9,092		Nondoctorate institutions N=10,073	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.7	3.0	46.3	4.5	44.4	1.1	49.6	4.6	42.1	3.5
Total instructional	19.1	1.6	18.1	2.1	21.2	1.5	13.8	2.0	23.9	2.3
Classroom	6.8	.3	6.5	.4	7.2	.5	3.2	.3	10.0	.6
Other	12.4	1.3	11.5	1.8	14.0	1.1	10.6	1.7	13.9	2.0
Total research	11.7	.9	13.3	1.4	8.5	1.0	20.5	1.5	3.8	.5
Federal	7.2	1.1	8.5	1.7	4.6	.7	14.4	1.8	.8	.6
Non-Federal	1.2	.3	1.5	.4	.7	.4	1.6	.5	.9	.4
Nonsponsored	3.3	.4	3.3	.6	3.2	.6	4.6	.8	2.2	.4
Total public service, administration and miscellaneous professional	7.4	.2	7.1	.3	7.9	.3	8.0	.4	6.8	.2
Public service	1.1	.2	1.1	.3	1.0	.2	.6	.1	1.4	.4
Administration	4.8	.3	4.5	.4	5.5	.4	5.3	.4	4.4	.4
Miscellaneous professional	1.5	.1	1.6	.2	1.4	.1	2.2	.1	.9	.2
Total outside income-producing activities	3.3	.8	3.5	1.2	2.9	1.1	3.9	.9	2.7	1.2
Consulting	.8	.2	.6	.1	1.2	.4	1.1	.2	.5	.2
Publication	2.0	.6	2.4	.8	1.3	.6	2.5	.7	1.6	.8
Other	.4	.2	.5	.3	.4	.2	.3	.1	.6	.3
Continuing education and professional enrichment	4.2	.2	4.3	.3	3.9	.2	3.4	.3	4.9	.3

SOURCE: National Science Foundation

Table B-43. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Chemistry departments

Activity	All institutions N=10,913		Public institutions N=7,263		Private institutions N=3,651		Doctorate institutions N=4,439		Nondoctorate institutions N=6,474	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.6	3.7	45.9	6.0	44.9	1.5	51.1	7.5	41.8	2.2
Total instructional	20.4	1.2	18.9	1.6	23.2	2.7	13.8	2.6	24.9	1.7
Classroom	7.5	.4	7.2	.3	8.3	.8	2.9	.2	10.7	.6
Other	12.8	1.2	11.8	1.8	15.0	1.9	10.9	2.5	14.2	1.2
Total research	10.2	2.5	11.9	3.7	6.8	.9	19.4	4.8	3.8	.7
Federal	5.6	2.4	7.2	3.6	2.5	.4	13.4	4.7	.3	.3
Non-Federal	1.8	.5	2.3	.6	.7	.6	2.5	.8	1.3	.6
Nonsponsored	2.8	.4	2.4	.4	3.6	.8	3.5	.7	2.3	.5
Total public service, administration and miscellaneous professional	7.2	.3	6.6	.4	8.4	.3	8.1	.5	6.6	.5
Public service	.8	.2	.8	.3	1.0	.1	.4	.1	1.1	.3
Administration	5.2	.3	4.7	.3	6.0	.5	5.7	.2	4.8	.5
Miscellaneous professional	1.2	.2	1.1	.4	1.4	.1	2.0	.5	.7	.3
Total outside income-producing activities	4.0	1.4	4.5	2.2	2.9	.7	6.0	1.2	2.6	2.0
Consulting	1.2	.3	.8	.2	1.9	.6	1.8	.3	.7	.4
Publication	2.4	1.0	3.2	1.5	.9	.2	4.0	1.0	1.4	1.3
Other	.4	.3	.5	.5	.1	.1	.1	.1	.6	.6
Continuing education and professional enrichment	3.8	.3	4.0	.4	3.5	.6	3.8	.6	3.9	.4

SOURCE: National Science Foundation

Table B-44. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Physics departments

Activity	All institutions N=7,163		Public institutions N=4,906		Private institutions N=2,257		Doctorate institutions N=3,809		Nondoctorate institutions N=3,354	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.0	3.4	45.9	4.7	43.2	1.2	47.8	2.0	41.9	6.3
Total instructional	17.8	2.5	17.6	3.3	18.3	2.2	14.0	2.0	22.1	4.1
Classroom	5.8	.5	6.0	.6	5.5	.7	3.4	.7	8.7	.8
Other	12.0	2.2	11.6	3.0	12.7	1.9	10.6	1.3	13.5	3.9
Total research	13.4	1.4	14.7	1.8	10.5	1.6	21.8	2.5	3.9	1.6
Federal	9.0	1.0	9.8	1.2	7.3	1.4	15.5	1.6	1.7	1.5
Non-Federal	.4	.1	.3	.1	.7	.2	.6	.2	.2	.2
Nonsponsored	3.9	.5	4.6	.6	2.6	.5	5.7	.9	2.0	.4
Total public service, administration and miscellaneous professional	7.1	1.0	7.2	1.5	6.9	.7	7.7	1.6	6.4	1.3
Public service	1.2	.5	1.3	.7	.9	.4	.7	.2	1.7	.9
Administration	4.2	.5	4.0	.8	4.6	.6	4.8	.9	3.4	.4
Miscellaneous professional	1.7	.4	1.9	.7	1.4	.5	2.2	.7	1.3	.2
Total outside income-producing activities	2.2	.5	2.0	.2	2.7	2.0	1.6	.2	2.9	1.2
Consulting	.2	.1	.3	.1	.1	.1	.3	.2	.2	.1
Publication	1.5	.4	1.3	.3	1.9	1.4	1.0	.3	2.1	.9
Other	.5	.2	.4	(1)	.7	.5	.3	.1	.6	.3
Continuing education and professional enrichment	4.5	.7	4.4	.8	4.8	1.4	2.7	1.0	6.6	1.1

(1) Less than .05

SOURCE: National Science Foundation

Table B-45. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Astronomy departments

Activity	All institutions N=752		Public institutions N=536		Private institutions N=215		Doctorate institutions N=526		Nondoctorate institutions N=225	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	51.2	2.3	53.4	3.8	45.7	3.1	51.6	2.5	50.1	13.4
Total instructional	14.8	5.0	13.6	6.4	17.7	6.4	11.9	3.6	21.6	7.9
Classroom	5.5	2.2	5.1	3.0	6.7	2.1	3.7	1.4	9.8	3.7
Other	9.3	2.9	8.6	3.5	11.0	4.3	8.2	2.3	11.8	4.7
Total research	16.8	5.2	17.0	7.1	16.4	5.0	22.6	2.8	3.3	2.8
Federal	12.0	4.2	12.1	5.9	11.6	2.3	16.6	3.0	1.2	2.0
Non-Federal	.4	.2	.4	.3	.5	.6	.6	.3	.0	.0
Nonsponsored	4.4	1.7	4.4	1.9	4.3	2.7	5.4	1.8	2.1	2.2
Total public service, administration and miscellaneous professional	11.2	3.7	13.8	5.2	4.7	1.3	9.8	2.5	14.6	10.0
Public service	2.9	1.0	3.9	1.4	.4	.2	1.2	.4	6.9	4.1
Administration	5.0	1.7	5.8	2.3	3.1	.6	4.4	.2	6.6	4.9
Miscellaneous professional	3.3	1.5	4.1	2.2	1.2	.5	4.2	1.9	1.1	1.0
Total outside income-producing activities	2.1	1.2	1.1	.7	4.8	1.5	2.2	1.0	2.1	2.6
Consulting	.1	.1	.1	.1	.2	.2	.2	.1	.1	.2
Publication	1.5	1.0	.7	.5	3.3	1.8	1.5	1.1	1.3	1.5
Other	.5	.3	.2	.1	1.3	1.1	.5	.3	.7	1.1
Continuing education and professional enrichment	6.2	3.1	7.9	3.1	2.1	1.2	5.2	1.9	8.6	5.5

SOURCE: National Science Foundation

Table B-46. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Other physical sciences departments

Activity	All institutions N=338		Public[1] institutions		Private[1] institutions		Doctorate institutions N=318		Nondoctorate[1] institutions	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	50.0	1.9					48.3	1.3		
Total instructional	16.1	3.9					14.4	4.0		
Classroom	3.9	1.2					3.4	1.4		
Other	12.2	4.1					11.0	4.2		
Total research	15.9	5.1					16.9	4.9		
Federal	10.5	3.0					11.1	2.8		
Non-Federal	1.2	1.0					1.3	1.2		
Nonsponsored	4.3	2.7					4.5	2.8		
Total public service, administration and miscellaneous professional	9.1	1.8					7.8	1.1		
Public service	1.0	.7					.6	.4		
Administration	6.5	1.1					6.0	1.1		
Miscellaneous professional	1.5	.7					1.2	.5		
Total outside income-producing activities	6.2	5.9					6.6	6.6		
Consulting	2.4	2.3					2.6	2.5		
Publication	1.1	1.1					1.1	1.2		
Other	2.7	3.5					2.9	3.9		
Continuing education and professional enrichment	2.6	.7					2.6	.7		

[1] These categories of faculty members contained too few cases in the sample for stable parameter estimates. SOURCE: National Science Foundation

Table B-47. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Psychology departments

Activity	All institutions N=9,642		Public institutions N=5,360		Private institutions N=4,282		Doctorate institutions N=4,057		Nondoctorate institutions N=5,584	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	38.6	4.3	39.6	7.7	37.4	3.9	39.5	9.7	38.0	2.0
Total instructional	14.8	1.7	15.0	3.1	14.6	1.6	13.0	2.4	16.1	1.9
Classroom	5.4	.7	5.9	1.4	4.8	.9	4.2	.9	6.3	1.0
Other	9.4	1.0	9.1	1.7	9.8	.7	8.8	1.6	9.8	.9
Total research	6.1	1.1	6.0	1.2	6.3	2.3	9.1	2.4	3.9	.9
Federal	1.8	.7	1.2	.2	2.7	1.5	3.3	1.1	.8	.8
Non-Federal	1.0	.5	1.3	.7	.7	.6	1.0	.7	1.0	.7
Nonsponsored	3.2	.6	3.5	1.1	2.9	.3	4.8	1.6	2.1	.1
Total public service, administration and miscellaneous professional	9.5	1.6	8.8	1.8	10.5	2.5	8.8	2.2	10.1	2.3
Public service	1.6	.3	1.4	.3	1.8	.6	1.4	.4	1.8	.5
Administration	5.9	1.3	5.5	1.4	6.5	2.0	4.5	1.2	7.0	2.0
Miscellaneous professional	2.0	.6	1.9	.6	2.3	1.3	2.9	.9	1.4	.9
Total outside income-producing activities	4.3	1.0	5.4	1.9	3.0	.2	5.6	2.6	3.4	.9
Consulting	1.7	.7	2.6	1.4	.7	.2	1.0	.9	2.2	1.0
Publication	2.1	.7	2.7	1.2	1.5	.7	4.3	1.6	.6	.5
Other	.5	.3	.2	.1	.8	.6	.4	.3	.5	.4
Continuing education and professional enrichment	3.8	.6	4.5	1.1	3.0	.3	3.0	1.3	4.5	.3

SOURCE: National Science Foundation

Table B-48. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

All social sciences departments

Activity	All institutions N=23,102		Public institutions N=16,868		Private institutions N=6,235		Doctorate institutions N=11,460		Nondoctorate institutions N=11,642	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	44.3	1.8	45.9	2.4	40.1	1.0	48.1	3.2	40.6	0.5
Total instructional	18.8	1.0	19.1	1.3	18.1	.7	18.2	.5	19.4	1.8
Classroom	6.2	.6	6.3	.7	5.9	.6	4.9	.3	7.4	1.0
Other	12.6	.5	12.8	.6	12.3	.2	13.3	.2	12.0	.9
Total research	8.2	1.1	8.8	1.3	6.6	1.5	10.5	1.7	5.9	.8
Federal	1.3	.4	1.5	.5	.7	.4	.7	2.1	.5	.4
Non-Federal	1.4	.3	1.7	.3	.6	.3	1.7	.3	1.2	.4
Nonsponsored	5.5	.6	5.6	.8	5.2	1.1	6.8	.8	4.2	.8
Total public service, administration and miscellaneous professional	7.5	.6	7.7	.7	6.8	.5	8.4	.5	6.5	.8
Public service	1.6	.2	1.6	.2	1.7	.3	1.6	.3	1.6	.3
Administration	4.3	.3	4.4	.3	4.1	.4	4.8	.2	3.8	.4
Miscellaneous professional	1.5	.1	1.7	.2	1.0	.2	2.0	.1	1.1	.2
Total outside income-producing activities	3.5	.3	3.9	.5	2.3	.3	4.8	.3	2.1	.6
Consulting	.7	.1	.7	.1	.8	.1	.9	.2	.5	.1
Publication	2.5	.4	3.0	.5	1.2	.4	3.6	.5	1.4	.5
Other	.3	.1	.3	.1	.4	.1	.3	.1	.2	.1
Continuing education and professional enrichment	6.4	.9	6.4	1.2	6.3	.8	6.1	1.5	6.7	1.1

SOURCE: National Science Foundation

Table B-49. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Economics departments

Activity	All institutions N=5,050		Public institutions N=3,322		Private institutions N=1,728		Doctorate institutions N=3,372		Nondoctorate institutions N=1,678	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.8	5.5	47.0	8.1	43.5	1.5	47.6	8.1	42.3	3.2
Total instructional	17.3	3.4	17.2	4.9	17.6	1.2	17.2	4.9	17.6	1.1
Classroom	6.1	.4	6.1	.3	6.1	.8	5.1	.5	7.9	.3
Other	11.3	3.1	11.1	4.6	11.6	.6	12.1	4.5	9.6	.9
Total research	12.0	3.4	12.0	4.9	12.0	1.4	14.1	5.1	7.7	1.0
Federal	3.1	2.0	3.6	2.6	2.0	1.7	4.3	2.8	.6	.6
Non-Federal	1.6	.8	2.1	1.1	.8	.3	1.7	.8	1.5	1.5
Nonsponsored	7.2	1.0	6.2	1.5	9.2	.9	8.1	1.5	5.6	1.2
Total public service, administration and miscellaneous professional	8.8	1.3	9.7	2.0	7.3	1.0	8.8	1.4	8.9	2.6
Public service	2.1	.3	2.4	.4	1.7	.5	2.2	.4	2.1	.5
Administration	5.3	1.0	5.5	1.5	5.0	.8	5.1	1.2	5.9	1.7
Miscellaneous professional	1.4	.3	1.8	.5	.6	.5	1.6	.3	.9	.8
Total outside income-producing activities	2.6	.6	2.6	.8	2.5	.4	2.8	.7	2.2	.9
Consulting	1.4	.6	1.3	.9	1.5	.5	1.3	.8	1.5	.8
Publication	.8	.2	1.0	.3	.4	.2	1.1	.3	.1	.2
Other	.4	.2	.3	.3	.6	.4	.4	.2	.5	.4
Continuing education and professional enrichment	5.1	.7	5.6	.7	4.2	1.1	4.7	.7	6.0	1.5

SOURCE: National Science Foundation

Table B-50. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Political science departments

Activity	All institutions N=5,007		Public institutions N=3,532		Private institutions N=1,476		Doctorate institutions N=2,885		Nondoctorate institutions N=2,123	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	43.0	1.4	45.8	2.0	36.3	2.7	46.8	2.4	37.9	2.9
Total instructional	19.6	2.8	21.0	3.8	16.4	1.5	23.1	4.6	14.9	2.2
Classroom	6.0	.6	5.7	.8	6.9	1.2	5.6	.3	6.6	1.2
Other	13.6	2.9	15.3	3.8	9.4	2.7	17.4	4.7	8.3	1.8
Total research	7.5	1.6	8.2	1.7	5.6	3.6	7.8	2.0	7.0	2.1
Federal	.8	.5	1.1	.7	(1)	(1)	.5	.1	1.2	1.2
Non-Federal	1.0	.6	1.3	.9	.2	.1	1.6	1.1	.1	.1
Nonsponsored	5.6	1.3	5.8	1.3	5.4	3.5	5.7	.9	5.6	2.5
Total public service, administration and miscellaneous professional	6.4	.8	6.7	1.0	5.6	.7	6.1	1.1	6.9	.7
Public service	1.3	.5	1.4	.7	1.3	.6	1.3	.9	1.4	.4
Administration	3.6	.3	3.7	.4	3.5	.3	3.3	.3	4.0	.4
Miscellaneous professional	1.4	.4	1.7	.5	.9	.5	1.4	.5	1.5	.4
Total outside income-producing activities	3.6	.8	3.4	.7	4.1	1.5	3.8	.7	3.4	1.1
Consulting	.4	.1	.4	.1	.4	.4	.6	.2	.1	.1
Publication	2.8	.8	2.5	.6	3.4	1.8	2.9	.8	2.7	.8
Other	.4	.1	.5	.2	.3	.2	.3	.1	.6	.3
Continuing education and professional enrichment	5.9	2.4	6.5	3.5	4.6	.7	6.0	4.2	5.8	1.0

SOURCE: National Science Foundation

Table B-51. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Sociology departments

Activity	All institutions N=7,517		Public institutions N=5,434		Private institutions N=2,083		Doctorate institutions N=2,589		Nondoctorate institutions N=4,928	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	44.7	1.9	47.6	2.6	37.3	2.8	50.4	2.8	41.8	2.5
Total instructional	19.3	2.7	19.4	3.8	19.3	.7	15.7	1.6	21.3	3.8
Classroom	5.9	1.8	6.3	2.5	4.9	.7	4.5	.8	6.6	2.7
Other	13.4	.9	13.1	1.3	14.3	.8	11.1	.9	14.6	1.2
Total research	5.6	.9	6.7	1.1	2.7	.8	9.1	.9	3.8	1.2
Federal	.4	.2	.6	.2	(1)	(1)	1.2	.4	(1)	(1)
Non-Federal	1.0	.2	1.1	.1	.8	.7	2.2	.3	.4	.3
Nonsponsored	4.2	.9	5.1	1.1	1.9	.6	5.8	1.1	3.4	1.3
Total public service, administration and miscellaneous professional	7.4	.9	8.2	1.2	5.2	.6	9.2	2.0	6.4	1.0
Public service	1.3	.3	1.5	.4	.8	.2	.8	.5	1.6	.3
Administration	4.3	.5	4.6	.5	3.5	1.2	5.4	.6	3.7	.7
Miscellaneous professional	7.4	.9	8.2	1.2	5.2	.6	9.2	2.0	1.1	.3
Total outside income-producing activities	4.4	1.1	5.8	1.2	.9	.4	8.4	1.3	2.3	1.2
Consulting	.5	.1	.5	.1	.4	.3	.5	.3	.4	.1
Publication	3.8	1.1	5.2	1.3	.1	.1	7.6	1.2	1.8	1.2
Other	.2	.1	.1	.1	.3	.1	.3	.2	.1	(1)
Continuing education and professional enrichment	8.0	1.6	7.5	2.2	9.2	1.5	8.0	1.8	8.0	2.7

(1)Less than .05.

SOURCE: National Science Foundation

Table B-52. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by control of institution and by doctorate-granting status: 1978/79

Other social sciences departments

Activity	All institutions N=5,528		Public institutions N=4,579		Private institutions N=948		Doctorate institutions N=2,614		Nondoctorate institutions N=2,914	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	43.5	2.5	43.0	3.2	46.2	4.7	48.0	2.8	39.6	3.3
Total instructional	18.8	2.2	18.7	2.3	19.3	3.4	16.8	1.6	20.7	3.3
Classroom	6.8	1.2	7.0	1.4	5.9	1.5	4.3	.4	9.1	1.6
Other	12.0	1.5	11.7	1.5	13.4	2.6	12.5	1.3	11.5	2.3
Total research	8.8	1.4	9.2	1.7	6.7	2.9	10.3	1.6	7.4	2.9
Federal	1.2	.6	1.3	.7	.7	.6	1.8	1.0	.6	.7
Non-Federal	2.1	1.2	2.4	1.5	.8	.3	1.1	.5	3.0	2.2
Nonsponsored	5.5	1.0	5.6	.9	5.1	2.9	7.3	.9	3.8	1.6
Total public service, administration and miscellaneous professional	7.3	1.5	6.4	1.6	11.5	3.7	9.7	1.1	5.2	2.3
Public service	1.7	.8	1.2	.7	4.5	1.9	1.8	1.6	1.7	.7
Administration	4.1	1.1	3.9	1.4	4.9	1.7	5.7	1.5	2.6	1.2
Miscellaneous professional	1.5	.5	1.4	.5	2.0	1.2	2.2	.3	.8	.8
Total outside income-producing activities	2.8	1.0	2.9	1.1	2.4	1.4	5.1	1.3	.8	.9
Consulting	.6	.2	.6	.2	.9	.5	1.0	.2	.2	.3
Publication	2.1	.9	2.2	1.0	1.5	1.3	3.8	1.3	.5	.7
Other	.1	.1	.2	.1	.0	.0	.3	.1	(1)	(1)
Continuing education and professional enrichment	5.8	1.1	5.7	1.2	6.4	2.7	6.2	1.7	5.5	1.5

(1)Less than .05.

SOURCE: National Science Foundation

Table B-53. Professional activity of science/engineering (S/E) faculty in mean hours per week with standard deviations, for publicly and privately controlled institutions by doctorate-granting status: 1978-79

All S/E departments

Activity	Public				Private			
	Doctorate granting N=53,047		Nondoctorate granting N=31,353		Doctorate granting N=13,903		Nondoctorate granting N=20,237	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.3	0.3	45.0	1.0	47.7	0.8	39.0	0.8
Total instructional	15.1	.3	21.8	.7	14.1	1.1	21.4	.5
Classroom	4.4	.3	9.0	.4	4.1	.9	7.5	.4
Other	10.7	.1	12.8	.5	9.9	.3	13.9	.2
Total research	15.5	.4	5.7	.4	15.7	.2	3.9	.4
Federal	9.4	.7	.9	.2	9.7	.8	.8	.2
Non-Federal	2.4	.5	1.5	.3	1.4	.3	.5	.3
Nonsponsored	3.8	.2	3.2	.6	4.6	.5	2.6	.1
Total public service, administration and miscellaneous professional	9.7	.2	7.6	.7	8.7	.4	7.2	.4
Public service	1.7	.4	2.5	.9	1.3	.3	1.5	.3
Administration	5.4	.3	4.2	.4	5.0	.7	4.5	.3
Miscellaneous professional	2.6	.5	.9	.1	2.3	.7	1.1	.3
Total outside income-producing activities	3.9	.2	3.8	1.0	5.0	.4	2.1	.4
Consulting	1.1	.1	1.3	.2	1.7	.1	.9	.2
Publication	2.3	.4	1.7	.3	2.6	.6	.7	.1
Other	.5	.2	.8	.6	.7	.5	.4	.2
Continuing education and professional enrichment	4.0	.2	6.1	.6	4.1	.5	4.5	.7

SOURCE: National Science Foundation

Table B-54. Professional activity of science/engineering faculty in mean hours per week with standard deviations, for publicly and privately controlled institutions by doctorate-granting status: 1978/79

All engineering departments

Activity	Public				Private			
	Doctorate granting N=7,942		Nondoctorate granting N=3,297		Doctorate granting N=1,722		Nondoctorate granting N=1,384	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	49.2	1.0	47.0	3.6	47.9	2.9	43.5	0.9
Total instructional	15.8	.8	23.1	.8	14.2	.8	23.3	2.3
Classroom	4.8	.5	10.0	.2	3.9	.2	9.4	.8
Other	11.0	.4	13.1	.8	10.3	.6	13.9	2.0
Total research	14.8	1.1	3.5	1.3	14.1	.5	2.7	2.0
Federal	10.2	1.5	1.7	.5	9.6	.5	1.1	.8
Non-Federal	2.4	.3	1.0	.7	1.5	.4	.6	.5
Nonsponsored	2.2	.4	.7	.2	3.0	.7	1.0	.6
Total public service, administration and miscellaneous professional	9.9	1.1	6.1	1.4	10.6	.7	5.8	.4
Public service	1.7	.4	1.3	.6	1.8	.7	.9	.1
Administration	6.3	.7	3.6	2.1	5.5	.3	3.6	.6
Miscellaneous professional	1.9	.3	1.2	.2	3.3	.1	1.4	.2
Total outside income-producing activities	5.8	.5	11.1	3.4	6.1	1.5	8.5	1.7
Consulting	3.3	.5	4.6	.8	3.2	.6	5.2	1.7
Publication	1.5	.3	5.3	3.4	2.6	.9	2.1	.7
Other	.9	.2	1.2	.3	.3	.1	1.1	.7
Continuing education and professional enrichment	3.0	.1	3.2	.9	2.9	.2	3.3	.6

SOURCE: National Science Foundation

Table B-55. Professional activity of science/engineering faculty in mean hours per week with standard deviations, for publicly and privately controlled institutions by doctorate-granting status: 1978/79

Earth, environmental, and marine sciences departments

Activity	Public				Private			
	Doctorate granting N=3,223		Nondoctorate granting N=1,818		Doctorate granting N=368		Nondoctorate granting N=286	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	49.9	4.8	57.0	10.3	47.4	4.3	38.3	9.4
Total instructional	13.6	1.8	26.5	7.4	14.7	1.8	22.4	3.5
Classroom	5.2	.6	7.2	.5	3.7	1.1	9.2	2.0
Other	8.4	1.3	19.2	7.4	11.0	.8	13.1	1.5
Total research	19.0	3.8	12.8	2.6	16.6	6.0	1.7	1.5
Federal	11.0	3.3	.9	2.1	11.5	5.5	(1)	(1)
Non-Federal	5.2	1.4	2.5	1.3	.6	.2	.0	.0
Nonsponsored	2.8	.9	9.4	3.3	4.4	.8	1.7	1.4
Total public service, administration and miscellaneous professional	11.0	2.1	5.9	1.1	8.7	3.2	8.1	3.9
Public service	2.1	.7	2.1	.8	.8	.6	1.8	.7
Administration	6.9	2.1	3.7	1.1	4.2	2.2	2.9	.1
Miscellaneous professional	2.0	.4	.2	.4	3.7	1.1	3.5	3.2
Total outside income-producing activities	1.8	.6	2.2	2.4	3.1	.8	3.2	3.0
Consulting	.6	.2	.4	.2	1.9	.9	2.9	2.6
Publication	1.1	.4	.5	.5	.9	.4	.4	.3
Other	.1	(1)	1.3	2.0	.3	.5	.0	.0
Continuing education and professional enrichment	4.5	.6	9.7	4.1	4.3	2.2	2.8	2.4

[1]Less than .05.

SOURCE: National Science Foundation

Table B-56. Professional activity of science/engineering faculty in mean hours per week with standard deviations, for publicly and privately controlled institutions by doctorate-granting status: 1978/79

Life sciences departments

Activity	Public				Private			
	Doctorate granting N=17,642		Nondoctorate granting N=6,151		Doctorate granting N=5,193		Nondoctorate granting N=4,307	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	51.0	1.1	46.9	4.6	49.5	1.2	38.0	3.9
Total instructional	13.9	.5	18.8	1.5	11.7	1.1	24.1	2.5
Classroom	4.3	.8	7.8	.7	3.4	1.5	8.7	1.5
Other	9.5	.3	11.0	.9	8.3	.4	15.4	1.0
Total research	18.8	2.6	7.4	.8	19.1	1.0	5.2	.4
Federal	13.3	2.8	1.2	1.0	14.0	2.0	1.2	1.0
Non-Federal	3.2	.5	2.1	.4	1.6	1.1	1.2	1.0
Nonsponsored	2.2	.4	4.0	.7	3.6	.3	2.8	1.6
Total public service, administration and miscellaneous professional	11.6	1.3	10.9	3.3	8.7	1.2	5.2	.9
Public service	2.3	.7	6.7	3.4	1.8	.8	.9	.1
Administration	5.5	.2	3.5	.5	4.8	.9	3.7	.9
Miscellaneous professional	3.8	1.8	.7	.2	2.1	1.2	.6	.2
Total outside income-producing activities	3.3	.1	2.6	2.5	4.8	1.5	.6	.2
Consulting	.7	.3	.3	(1)	1.4	.5	.3	.1
Publication	1.8	.2	.8	.3	3.1	1.7	.2	.2
Other	.8	.4	1.5	2.7	.4	.3		(1)
Continuing education and professional enrichment	3.5	.4	7.3	2.1	5.2	.5	2.9	1.7

(1) Less than .05

SOURCE: National Science Foundation

Table B-57. Professional activity of science/engineering faculty in mean hours per week with standard deviations, for publicly and privately controlled institutions by doctorate-granting status: 1978/79

Mathematical/computer sciences departments

Activity	Public				Private			
	Doctorate granting N=4,958		Nondoctorate granting N=4,167		Doctorate granting N=1,293		Nondoctorate granting N=2,882	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	39.9	1.8	46.1	1.0	43.2	1.6	41.3	2.7
Total instructional	17.2	1.0	25.6	1.2	14.8	.4	24.3	3.2
Classroom	5.3	.5	9.5	.4	3.6	.4	8.7	2.0
Other	11.9	1.4	16.1	1.1	11.2	.6	15.5	1.7
Total research	9.7	.9	3.1	.8	9.2	1.1	2.7	2.0
Federal	3.0	.4	1.2	.5	4.5	1.1	.7	.6
Non-Federal	.7	.2	.3	(1)	.1	.1	.1	.1
Nonsponsored	6.0	1.2	1.6	.4	4.5	1.0	1.9	1.4
Total public service, administration and miscellaneous professional	7.2	2.4	7.6	1.2	7.1	1.6	7.1	.7
Public service	1.1	.6	1.4	.9	.8	.1	1.9	1.3
Administration	4.6	1.9	5.3	.7	4.5	.6	3.5	.5
Miscellaneous professional	1.5	.2	.9	.6	1.8	1.1	1.6	.9
Total outside income-producing activities	1.5	1.1	3.8	2.6	8.2	1.8	1.4	.5
Consulting	.4	.1	2.0	.9	2.2	1.4	.2	.1
Publication	1.0	1.1	1.1	.9	2.0	.9	.7	.4
Other	.1	(1)	.8	.3	3.9	2.8	.5	.3
Continuing education and professional enrichment	4.3	.5	5.9	1.3	3.9	1.4	5.9	1.5

(1) Less than .05

SOURCE: National Science Foundation

Table B-58. Professional activity of science/engineering faculty in mean hours per week with standard deviations, for publicly and privately controlled institutions by doctorate-granting status: 1978/79

All physical sciences departments

Activity	Public				Private			
	Doctorate granting N=6,819		Nondoctorate granting N=6,158		Doctorate granting N=2,273		Nondoctorate granting N=3,915	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	50.7	6.2	41.4	5.7	46.5	3.0	43.2	.6
Total instructional	13.6	2.6	23.0	3.3	14.2	1.2	25.3	1.9
Classroom	3.0	.4	10.5	.8	3.7	.2	9.2	.7
Other	10.7	2.1	12.5	2.9	10.5	1.3	16.1	1.3
Total research	21.7	1.7	3.9	.7	16.9	3.3	3.6	.9
Federal	15.4	2.4	.8	1.0	11.2	2.6	.8	.1
Non-Federal	1.6	.5	1.3	.7	1.5	1.3	.2	.1
Nonsponsored	4.7	1.2	1.8	.3	4.1	.7	2.7	.9
Total public service, administration and miscellaneous professional	7.8	.6	6.4	.4	8.8	1.0	7.3	.2
Public service	.5	.1	1.7	.5	.9	.4	1.0	.1
Administration	5.1	.6	3.8	.5	5.7	1.1	5.4	.3
Miscellaneous professional	2.2	.1	.9	.4	2.2	.3	1.0	.1
Total outside income-producing activities	4.1	1.1	2.8	2.0	3.4	.5	2.6	1.8
Consulting	1.0	.2	.2	.1	1.4	.4	1.1	.6
Publication	2.7	.9	2.0	1.3	1.9	.2	1.0	.9
Other	.3	.1	.7	.6	.2	.2	.5	.2
Continuing education and professional enrichment	3.4	.3	5.2	.5	3.2	.2	4.3	.3

SOURCE: National Science Foundation

Table B-59. Professional activity of science/engineering faculty in mean hours per week with standard deviations, for publicly and privately controlled institutions by doctorate-granting status: 1978/79

Psychology departments

Activity	Public				Private			
	Doctorate granting N=3,013		Nondoctorate granting N=2,347		Doctorate granting N=1,044		Nondoctorate granting N=3,238	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	36.0	13.0	44.3	2.4	49.6	9.8	33.4	3.7
Total instructional	12.2	3.1	18.5	4.5	15.4	3.3	14.4	1.9
Classroom	3.7	.9	8.7	2.4	5.7	1.8	4.5	1.0
Other	8.5	2.2	9.8	2.1	9.6	1.5	9.9	.9
Total research	7.2	2.0	4.4	1.6	14.5	6.7	3.7	1.3
Federal	2.0	.2	.1	.1	6.3	3.6	1.3	1.4
Non-Federal	.5	.1	2.3	1.8	2.6	2.2	.1	.1
Nonsponsored	4.7	2.1	2.0	.2	5.1	1.0	2.2	(*)
Total public service, administration and miscellaneous professional	8.0	2.9	9.8	2.0	11.0	.5	10.4	3.4
Public service	1.6	.6	1.2	.1	.7	.4	2.2	.8
Administration	3.6	1.3	7.9	2.5	6.9	2.0	6.3	2.6
Miscellaneous professional	2.7	1.1	.7	.4	3.4	2.1	1.9	1.5
Total outside income-producing activities	5.3	3.3	5.6	2.1	6.6	.6	1.8	.1
Consulting	1.1	1.1	4.5	2.5	.9	.7	.6	.1
Publication	4.2	2.2	.7	.6	4.5	1.3	.5	.6
Other	.1	.1	.4	.3	1.2	1.1	.6	.7
Continuing education and professional enrichment	3.3	1.8	6.1	.7	2.2	.3	3.2	.3

*Less than .05.

SOURCE: National Science Foundation

Table B-60. Professional activity of science/engineering faculty in mean hours per week with standard deviations, for publicly and privately controlled institutions by doctorate-granting status: 1978/79

All social sciences departments

Activity	Public				Private			
	Doctorate granting N=9,450		Nondoctorate granting N=7,417		Doctorate granting N=2,010		Nondoctorate granting N=4,225	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.7	3.8	42.2	.7	45.3	2.2	37.7	.9
Total instructional	18.1	.5	20.3	2.8	18.7	1.1	17.9	.8
Classroom	4.6	.3	8.5	1.3	6.4	.7	5.6	.8
Other	13.5	.2	11.8	1.4	12.3	.5	12.3	.2
Total research	10.3	2.0	6.8	.4	11.5	1.8	4.2	1.7
Federal	2.2	.8	.6	.6	1.6	1.1	.2	.3
Non-Federal	1.8	.4	1.6	.5	1.0	.2	.4	.4
Nonsponsored	6.3	.9	4.6	1.2	8.8	1.1	3.5	1.4
Total public service, administration and miscellaneous professional	8.8	.6	6.2	1.1	6.5	.5	7.0	.6
Public service	1.7	.4	1.4	.4	1.0	.2	2.1	.4
Administration	5.0	.2	3.6	.5	4.0	.8	4.2	.4
Miscellaneous professional	2.1	.1	1.2	.3	1.5	.5	.8	.2
Total outside income-producing activities	5.1	.4	2.4	.9	3.8	.8	1.6	.2
Consulting	.7	.2	.6	.2	1.7	.4	.3	.2
Publication	4.0	.6	1.7	.8	1.9	1.1	.8	.1
Other	.3	.2	.1	.1	.2	(1)	.4	.2
Continuing education and professional enrichment	6.4	1.9	6.5	1.7	4.8	1.2	7.0	.8

[1]Less than .05.

SOURCE: National Science Foundation

Table B-61. Professional activity of science/engineering (S/E) faculty in mean hours per week with standard deviations, by possession of the Ph.D. degree: 1978/79

All S/E departments

Activity	Total faculty N=118,540		Doctorate faculty N=98,664		Nondoctorate faculty N=19,875	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.8	.4	46.5	.2	42.4	1.5
Total instructional	17.8	.3	17.6	.2	18.8	1.4
Classroom	6.1	.3	5.7	.2	8.2	.8
Other	11.7	.2	11.9	.1	10.6	.7
Total research	11.0	.2	11.9	.2	6.1	1.0
Federal	5.7	.3	6.2	.2	3.6	1.4
Non-Federal	1.7	.3	1.9	.2	.9	.4
Nonsponsored	3.5	.2	3.9	.2	1.6	.4
Total public service, administration and miscellaneous professional	8.6	.2	8.7	.3	8.1	1.0
Public service	1.8	.3	1.8	.3	1.9	.5
Administration	4.9	.2	5.0	.2	4.2	.3
Miscellaneous professional	1.9	.3	1.8	.1	2.0	1.0
Total outside income-producing activities	3.7	.3	3.6	.2	4.2	.7
Consulting	1.2	.1	1.1	.1	1.7	.2
Publication	1.9	.2	2.0	.2	1.5	.4
Other	.6	.2	.5	.1	1.1	.7
Continuing education and professional enrichment	4.7	.2	4.6	.3	5.1	.4

SOURCE: National Science Foundation

Table B-62. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by possession of the Ph.D. degree: 1978/79

All engineering departments

Activity	Total faculty N=143,343		Doctorate faculty N=10,783		Nondoctorate faculty N=3,561	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.0	1.5	50.0	.7	41.4	2.6
Total instructional	18.0	.6	16.9	.7	21.2	1.0
Classroom	6.3	.6	5.4	.6	9.2	.4
Other	11.7	.3	11.5	.2	12.0	.9
Total research	10.9	1.2	14.0	.9	1.5	.4
Federal	7.3	1.2	9.5	1.2	.5	.1
Non-Federal	1.8	.3	2.3	.4	.3	.1
Nonsponsored	1.9	.3	2.2	.4	.8	.2
Total public service, administration and miscellaneous professional	8.7	.6	9.0	.3	7.8	1.8
Public service	1.5	.3	1.7	.3	1.0	.3
Administration	5.3	.6	5.2	.5	5.7	1.6
Miscellaneous professional	1.8	.2	2.1	.2	1.1	.2
Total outside income-producing activities	7.3	.8	7.0	.6	8.0	2.1
Consulting	3.8	.3	3.4	.9	4.9	1.9
Publication	2.6	.8	3.0	1.1	1.3	.4
Other	.9	.1	.6	.1	1.9	.5
Continuing education and professional enrichment	3.1	.3	3.1	.2	2.8	.6

SOURCE: National Science Foundation

Table B-63. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by possession of the Ph.D. degree: 1978/79

Earth, environmental, and marine science departments

Activity	Total faculty N=5,694		Doctorate faculty N=4,680		Nondoctorate faculty N=1,015	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	51.4	4.3	54.6	5.8	36.6	7.4
Total instructional	18.2	2.7	20.9	2.9	6.1	4.1
Classroom	6.0	.5	6.9	.4	1.9	1.7
Other	12.3	2.4	14.0	2.8	4.2	2.5
Total research	16.0	2.1	16.2	2.8	14.9	5.9
Federal	7.3	2.0	7.8	2.3	4.8	2.0
Non-Federal	3.8	.9	3.0	.3	7.3	4.2
Nonsponsored	4.9	1.4	5.4	1.5	2.8	3.1
Total public service, administration and miscellaneous professional	9.1	1.5	9.1	2.2	9.1	5.0
Public service	2.0	.5	1.8	.4	2.8	1.6
Administration	5.5	1.4	5.6	2.1	5.0	3.2
Miscellaneous professional	1.6	.4	1.7	.5	1.2	1.0
Total outside income-producing activities	2.1	.6	2.1	.8	1.9	1.4
Consulting	.7	.2	.7	.3	.6	.6
Publication	.9	.3	.8	.4	.9	.9
Other	.5	.3	.5	.4	.3	.4
Continuing education and professional enrichment	6.0	1.3	6.3	1.6	4.7	1.3

SOURCE: National Science Foundation

Table B-64. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by possession of the Ph.D. degree: 1978/79

Life sciences departments

Activity	Total faculty N=33,292		Doctorate faculty N=27,379		Nondoctorate faculty N=5,913	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	48.3	1.2	48.7	1.1	46.4	2.8
Total instructional	15.7	.7	16.1	.5	13.9	2.5
Classroom	5.4	.7	5.2	.6	6.1	1.6
Other	10.4	.3	10.9	.2	7.9	1.6
Total research	15.0	1.5	15.6	1.1	12.2	4.2
Federal	9.6	1.6	9.6	1.0	9.8	5.0
Non-Federal	2.5	.4	2.8	.4	.9	.7
Nonsponsored	2.8	.3	3.1	.5	1.5	.7
Total public service, administration and miscellaneous professional	10.2	1.0	10.2	.8	10.0	4.3
Public service	2.9	.8	3.2	.9	1.3	.3
Administration	4.8	.2	5.0	.3	4.1	.8
Miscellaneous professional	2.5	1.0	2.1	.5	4.6	3.9
Total outside income-producing activities	3.0	.5	2.5	.2	5.4	2.2
Consulting	.7	.1	.5	.1	1.2	.4
Publication	1.6	.2	1.5	.1	2.2	.9
Other	.7	.6	.5	.1	1.9	2.2
Continuing education and professional enrichment	4.4	.5	4.3	.6	4.9	.9

SOURCE: National Science Foundation

Table B-65. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by possession of the Ph.D. degree: 1978/79

Mathematical/computer sciences departments

Activity	Total faculty N=13,300		Doctorate faculty N=10,831		Nondoctorate faculty N=2,469	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	42.5	.9	41.2	.8	47.8	4.4
Total instructional	21.1	1.1	19.9	1.0	26.6	1.5
Classroom	7.[illegible]	.7	6.4	.5	10.5	1.3
Other	13.[illegible]	.7	13.4	.8	16.1	.7
Total research	6.[illegible]	.5	6.5	.3	4.2	2.1
Federal	2.1	.3	2.3	.4	.9	.6
Non-Federal	.4	.1	.4	.1	.6	.2
Nonsponsored	3.6	.3	3.8	.3	2.8	1.5
Total public service, administration and miscellaneous professional	7.3	.9	7.0	.9	8.3	2.2
Public service	1.3	.5	.9	.3	3.5	2.2
Administration	4.6	.6	4.8	.7	3.[illegible]	.6
Miscellaneous professional	1.4	.3	1.4	.3	1.2	.7
Total outside income-producing activities	2.8	1.0	3.0	1.3	2.1	.7
Consulting	1.0	.3	1.1	.6	1.0	.9
Publication	1.1	.5	1.2	.7	.6	.4
Other	.8	.4	.8	.5	.5	.3
Continuing education and professional enrichment	5.1	.7	4.8	.6	6.4	2.0

SOURCE: National Science Foundation

Table B-66. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by possession of the Ph.D. degree: 1978/79

All physical sciences departments

Activity	Total faculty N=19,165		Doctorate faculty N=16,689		Nondoctorate faculty N=2,477	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	45.7	3.0	46.4	2.9	40.6	4.0
Total instructional	19.1	1.6	18.2	1.9	25.0	1.3
Classroom	6.8	.3	6.0	.6	12.2	1.6
Other	12.4	1.3	12.3	1.4	12.9	1.4
Total research	11.7	.9	13.1	1.0	2.4	1.4
Federal	7.2	1.1	8.1	1.1	1.7	1.3
Non-Federal	1.2	.3	1.4	.4	(1)	(1)
Nonsponsored	3.3	.4	3.7	.4	.7	.4
Total public service, administration and miscellaneous professional	7.4	.2	7.5	.3	6.7	.6
Public service	1.1	.2	1.1	.2	1.1	.3
Administration	4.8	.3	4.8	.3	5.0	.6
Miscellaneous professional	1.5	.1	1.6	.1	.7	.4
Total outside income-producing activities	3.3	.8	3.4	.7	2.9	2.3
Consulting	.8	.2	.9	.2	.3	.4
Publication	2.0	.6	2.0	.4	2.3	1.9
Other	.4	.2	.5	.2	.3	.3
Continuing education and professional enrichment	4.2	.2	4.2	.2	3.6	1.6

(1) Less than .05

SOURCE: National Science Foundation

Table B-67. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by possession of the Ph.D. degree: 1978/79

Psychology departments

Activity	Total faculty N=9,642		Doctorate faculty N=8,512		Nondoctorate faculty[1]	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	38.6	4.3	38.5	5.3		
Total instructional	14.8	1.7	14.5	2.0		
Classroom	5.4	.7	5.1	1.0		
Other	9.4	1.0	9.4	1.2		
Total research	6.1	1.1	6.5	1.3		
Federal	1.8	.7	2.1	.8		
Non-Federal	1.0	.5	.9	.4		
Nonsponsored	3.2	.6	3.5	.7		
Total public service, administrative and miscellaneous professional	9.5	1.6	9.7	2.3		
Public service	1.6	.3	1.2	.3		
Administration	5.9	1.3	6.4	1.6		
Miscellaneous professional	2.0	.6	2.1	.7		
Total outside income-producing activities	4.3	1.0	4.2	1.1		
Consulting	1.7	.7	1.5	.9		
Publication	2.1	.7	2.4	.8		
Other	.5	.3	.3	.2		
Continuing education and professional enrichment	3.8	.6	3.6	.7		

[1]This category of faculty members contained too few cases in the sample for stable parameter estimates.

SOURCE: National Science Foundation

Table B-68. Professional activity of science/engineering faculty in mean hours per week with standard deviations, by possession of the Ph.D. degree: 1978/79

All social sciences departments

Activity	Total faculty N=23,102		Doctorate faculty N=19,791		Nondoctorate faculty N=3,311	
	Hours	Standard deviation	Hours	Standard deviation	Hours	Standard deviation
All activities	44.3	1.8	45.6	2.1	36.4	2.4
Total instructional	18.8	1.0	18.9	.8	18.7	2.6
Classroom	6.2	.6	5.9	.4	8.2	2.0
Other	12.6	.5	13.0	.5	10.5	1.2
Total research	8.2	1.1	9.1	1.3	2.7	.6
Federal	1.3	.4	1.4	.5	.4	.2
Non-Federal	1.4	.3	1.6	.3	.1	.1
Nonsponsored	5.5	.6	6.0	.7	2.2	.7
Total public service, administration and miscellaneous professional	7.5	.6	7.8	.4	5.4	1.4
Public service	1.6	.2	1.5	.2	2.0	.7
Administration	4.3	.3	4.6	.2	2.8	.8
Miscellaneous professional	1.5	.1	1.7	.1	.6	.4
Total outside income-producing activities	3.5	.3	3.8	.3	1.6	.8
Consulting	.7	.1	.7	.1	.5	.4
Publication	2.5	.4	2.7	.4	1.1	.7
Other	.3	.1	.3	.1	.0	.0
Continuing education and professional enrichment	6.4	.9	6.1	.9	8.0	3.0

SOURCE: National Science Foundation

Table B-69. Professional activity of science/engineering (S/E) faculty in mean hours per week by academic rank: 1978/79

All S/E departments

Activity	All ranks N=118,540		Professor N=47,684		Associate professor N=39,306		Assistant professor N=31,550	
	Hours	Percent	Hours	Percent	Hours	Percent	Hours	Percent
All activities	45.8	100.0	47.2	100.0	43.7	100.0	46.2	100.0
Total instructional	17.8	38.9	16.6	35.2	18.5	42.2	18.8	40.7
Classroom	6.1	13.3	5.7	12.0	6.5	14.9	6.3	13.6
Other	11.7	25.6	11.0	23.2	11.9	27.3	12.5	27.1
Total research	11.0	23.9	11.2	23.7	10.9	25.0	10.6	23.0
Federal	5.7	12.5	5.4	11.5	6.0	13.6	5.9	12.8
Non-Federal	1.7	3.7	2.0	4.2	1.5	3.4	1.5	3.3
Nonsponsored	3.5	7.7	3.8	8.0	3.5	8.0	3.2	6.8
Total public service, administration and miscellaneous professional	8.6	18.8	10.7	22.6	7.0	16.0	7.4	16.0
Public service	1.8	4.0	1.9	4.1	1.2	2.7	2.5	5.5
Administration	4.9	10.6	6.1	12.9	4.5	10.2	3.5	7.6
Miscellaneous professional	1.9	4.1	2.7	5.6	1.3	3.1	1.4	2.9
Total outside income-producing activities	3.7	8.1	4.2	8.9	3.1	7.2	3.6	7.8
Consulting	1.2	2.6	1.6	3.5	1.1	2.5	.7	1.5
Publication	1.9	4.2	1.8	3.8	1.7	3.9	2.4	5.1
Other	.6	1.3	.8	1.6	.4	1.0	.6	1.2
Continuing education and professional enrichment	4.7	10.3	4.5	9.5	4.1	9.3	5.7	12.4

SOURCE: National Science Foundation

Table B-70. Professional activity of science/engineering (S/E) faculty in mean hours per week by control of institution and by doctorate-granting status: 1978/79

All S/E departments

Activity	All institutions N=118,540		Public institutions N=84,400		Private institutions N=34,140		Doctorate institutions N=66,950		Nondoctorate institutions N=51,590	
	Hours	Percent	Hours	Percent	Hours	Percent	Hours	Percent	Hours	Percent
All activities	45.8	100.0	47.1	100.0	42.6	100.0	48.2	100.0	42.7	100.0
Total instructional	17.8	38.9	17.6	37.3	18.4	43.3	14.9	30.9	21.6	50.7
Classroom	6.1	13.3	6.1	12.9	6.2	14.5	4.3	9.0	8.4	19.7
Other	11.7	25.6	11.5	24.4	12.3	28.8	10.5	21.9	13.2	31.0
Total research	11.0	23.9	11.9	25.2	8.7	20.4	15.6	32.3	5.0	11.6
Federal	5.7	12.56	6.2	13.3	4.4	10.5	9.4	19.6	.9	2.1
Non-Federal	1.7	3.7	2.0	4.3	.8	2.0	2.2	4.5	1.1	2.6
Nonsponsored	3.5	7.7	3.6	7.6	3.4	8.0	4.0	8.2	3.0	6.9
Total public service, administration and miscellaneous professional	8.6	18.8	8.9	19.0	7.8	18.3	9.5	19.7	7.4	17.4
Public service	1.8	4.0	2.0	4.3	1.4	3.4	1.6	3.4	2.1	5.0
Administration	4.9	10.6	4.9	10.5	4.7	11.1	5.3	11.0	4.3	10.1
Miscellaneous professional	1.9	4.1	2.0	4.2	1.6	3.8	2.6	5.3	1.0	2.3
Total outside income-producing activities	3.7	8.1	3.9	8.2	3.3	7.6	4.2	8.6	3.1	7.3
Consulting	1.2	2.6	1.2	2.5	1.2	2.8	1.2	2.6	1.2	2.7
Publication	1.9	4.2	2.1	4.4	1.5	3.5	2.4	4.9	1.3	3.1
Other	.6	1.3	.6	1.3	.5	1.3	.6	1.2	.7	1.5
Continuing education and professional enrichment	4.7	10.3	4.8	10.2	4.4	10.3	4.1	8.4	5.5	12.9

SOURCE: National Science Foundation

Table B-71. Professional activity of science/engineering (S/E) faculty in mean hours per week for publicly and privately controlled institutions by doctorate-granting status: 1978/79

All S/E departments

Activity	Public				Private			
	Doctorate granting N=53,047		Nondoctorate granting N=31,353		Doctorate granting N=13,903		Nondoctorate granting N=20,237	
	Hours	Percent	Hours	Percent	Hours	Percent	Hours	Percent
All activities	48.3	100.0	45.0	100.0	47.7	100.0	39.0	100.0
Total instructional	15.1	31.2	21.8	48.3	14.1	29.5	21.4	54.9
Classroom	4.4	9.1	9.0	19.9	4.1	8.7	7.5	19.3
Other	10.7	22.1	12.8	28.4	9.9	20.9	13.9	35.6
Total research	15.5	32.2	5.7	12.6	15.7	32.9	3.9	9.9
Federal	9.4	19.4	.9	2.1	9.7	20.4	.8	2.1
Non-Federal	2.4	4.9	1.5	3.4	1.4	2.9	.5	1.2
Nonsponsored	3.8	7.9	3.2	7.1	4.6	9.6	2.6	6.6
Total public service, administration and miscellaneous professional	9.7	20.1	7.6	16.9	8.7	18.2	7.2	18.3
Public service	1.7	3.5	2.5	5.6	1.3	2.8	1.5	3.9
Administration	5.4	11.1	4.2	9.3	5.0	10.6	4.5	11.5
Miscellaneous professional	2.6	5.4	.9	2.0	2.3	4.8	1.1	2.9
Total outside income-producing activities	3.9	8.1	3.8	8.4	5.0	10.5	2.1	5.3
Consulting	1.1	2.3	1.3	3.0	1.7	3.6	.9	2.2
Publication	2.3	4.7	1.7	3.8	2.6	5.5	.7	1.9
Other	.5	1.1	.8	1.8	.7	1.5	.4	1.1
Continuing education and professional enrichment	4.0	8.4	6.1	13.6	4.1	8.7	4.5	11.6

SOURCE: National Science Foundation

Table B-72. Professional activity of science/engineering (S/E) faculty in mean hours per week by possession of the Ph.D. degree: 1978/79

All S/E departments

Activity	Total faculty N=118,540		Doctorate faculty N=98,664		Nondoctorate faculty N=19,875	
	Hours	Percent	Hours	Percent	Hours	Percent
All activities	45.8	100.0	46.5	100.0	42.4	100.0
Total instructional	17.8	38.9	17.6	37.9	18.8	44.2
Classroom	6.1	13.3	5.7	12.3	8.2	19.3
Other	11.7	25.6	11.9	25.7	10.6	25.0
Total research	11.0	23.9	11.9	25.7	6.1	14.4
Federal	5.7	12.5	6.2	13.2	3.6	8.5
Non-Federal	1.7	3.7	1.9	4.0	.9	2.1
Nonsponsored	3.5	7.7	3.9	8.4	1.6	3.8
Total public service, administration and miscellaneous professional	8.6	18.8	8.7	18.7	8.1	19.1
Public service	1.8	4.0	1.8	4.0	1.9	4.4
Administration	4.9	10.6	5.0	10.8	4.2	9.9
Miscellaneous professional	1.9	4.1	1.8	4.0	2.0	4.8
Total outside income-producing activities	3.7	8.1	3.6	7.7	4.2	9.9
Consulting	1.2	2.6	1.1	2.4	1.7	4.0
Publication	1.9	4.2	2.0	4.3	1.5	3.5
Other	.6	1.3	.5	1.1	1.1	2.7
Continuing education and professional enrichment	4.7	10.3	4.6	9.9	5.1	12.0

SOURCE: National Science Foundation

appendix c

statistical results from regression analysis of research funding

Dependent variable: Sum of hours in nonsponsored research and hours in nonfederally sponsored research

Field	Constant	Hours of federally sponsored research	R^2	F ratio
All fields	5.73	-0.9		
	(30.1)	(-6.3)	0.02	40
Engineering	4.15	-0.4		
	(15.0)	(-1.8)	.00	3
Environmental sciences	7.00	-.13		
	(8.6)	(-2.5)	.04	6
Life sciences	6.91	-.11		
	(13.2)	(-3.0)	.02	9
Mathematical/computer sciences	4.92	-.12		
	(9.7)	(-1.9)	.01	4
Physical sciences	6.00	-.12		
	(13.2)	(-4.2)	.03	17
Psychology	5.73	.05		
	(5.6)	(.4)	.00	0
Social sciences	7.45	-.04		
	(11.8)	(-.5)	.00	0

NOTE: Numbers in parentheses refer to t-statistics.

SOURCE: National Science Foundation

appendix d

reproduction of survey form

Form Approved
O.M.B. No. 99-S78012

NATIONAL SCIENCE FOUNDATION

Study of Activities of Science and Engineering Faculty in Four-Year Colleges and Universities

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Dear Colleague:

This study is designed to provide reliable information on how science and engineering (S&E) faculty spend their time in professional activities. The attached questionnaire is being used to collect the data directly from individuals randomly selected for a national probability sample of full-time S&E faculty.

Members of the sample were randomly assigned to one of 52 consecutive seven day survey periods. Your survey period starts on the date indicated at the bottom of this page. DO NOT BE CONCERNED if this is not a "normal" work period for you. We need your response for the seven days to which you are assigned even if it represents vacation or some other "atypical" time for you. You are invited to use the last page of the questionnaire for any general comments you may have concerning the study. These comments will be considered in preparation of the final report. For the study to yield representative information, it is important that each person in the survey sample complete and return his/her questionnaire for the designated survey period. Please return the entire document at the end of your seven days in the enclosed preaddressed stamped envelope.

PLEASE BE ASSURED THAT THE INFORMATION YOU PROVIDE IS CONFIDENTIAL and will not be used for anything but statistical purposes and to the extent permitted by law, will not be given to any other government agency, private concern, or individual except in the form of statistical summaries from which it is impossible to identify information about any particular person or institution.

The number in the lower right corner of each page is for survey control only. Your name, address, and the control number will be deleted from project files upon completion of processing.

This study is authorized by the National Science Foundation Act of 1950, as amended. While you are not required to respond and your participation in the survey is entirely voluntary, your cooperation is needed to make the results of the survey comprehensive, accurate, and timely.

If you have any questions regarding the survey please call us collect at (301) 770-4100. Your participation in this voluntary survey is most appreciated. Thank you for your cooperation.

Sincerely,

John A. Creager

John A. Creager, Ph.D.
Project Director
Information and Communication Applications, Inc.

YOUR SEVEN DAY SURVEY PERIOD BEGINS ON WEDNESDAY,

PLEASE READ instructions carefully before answering questions. Answer each question by entering an "X" in the box next to the appropriate reply or by printing your reply clearly. THANK YOU.

1. Age (to nearest birthday):

2. Sex:
   1 ☐ Male
   2 ☐ Female

3. Are you now a full-time faculty member?
   1 ☐ Yes 2 ☐ No

4. Is your present appointment at the institution to which this questionnaire was mailed?
   1 ☐ Yes
   2 ☐ No, I am a visiting professor at:
   3 ☐ No, I have taken a new position at:

   _____
   (Name of Present Institution)

5. Do you have tenure?
   1 ☐ Yes
   2 ☐ No, but I am in a tenure track position.
   3 ☐ No, and I am not in a tenure track position.

6. Mark whether your appointment as a full-time faculty member is for:
   1 ☐ 9-10 months
   2 ☐ 11-12 months

7. Is this week in the period of your regular faculty appointment?
   1 ☐ Yes 2 ☐ No

8. What is your present academic rank? (Mark one.)
   1 ☐ Professor
   2 ☐ Associate Professor
   3 ☐ Assistant Professor
   4 ☐ Instructor
   5 ☐ Lecturer
   6 ☐ Other rank; specify _____
   7 ☐ Do not hold rank designation

9. Please mark the most appropriate choice for your department of principal affiliation. (Mark one.)
   01 ☐ Aeronautical & Astronautical Engineering
   02 ☐ Chemical Engineering
   03 ☐ Civil Engineering
   04 ☐ Electrical Engineering
   05 ☐ Mechanical Engineering
   06 ☐ Other Engineering; specify _____
   07 ☐ Earth, Environmental, and Marine Sciences
   08 ☐ Agricultural Science
   09 ☐ Biological Science
   10 ☐ Computer Science
   11 ☐ Mathematics
   12 ☐ Chemistry
   13 ☐ Physics
   14 ☐ Astronomy
   15 ☐ Other Physical Sciences; specify _____
   16 ☐ Psychology
   17 ☐ Economics
   18 ☐ Political Science
   19 ☐ Sociology
   20 ☐ Other Social Sciences; specify _____
   21 ☐ Other; specify _____

10. What is the highest earned degree you now hold? (Mark one.)
   01 ☐ Less than Bachelor's (A.A., etc.)
   02 ☐ Bachelor's
   03 ☐ Master's
   04 ☐ LL.B., J.D.
   05 ☐ M.D.
   06 ☐ D.D.S.
   07 ☐ D.V.M.
   08 ☐ Other first professional beyond Bachelor's (e.g., D.D., D.O.)
   09 ☐ Ed.D.
   10 ☐ Ph.D., Sc.D.
   11 ☐ Other, specify _____

11. Year and month highest degree awarded? Year _____ Month _____

GO ON TO PAGE 2 ⟶

12. From the academic fields listed below, and continued on the next page, please choose and mark:

a) the field of your *highest* earned degree. (Mark one only.)

b) the field of your *professional self-identification.* (Mark one only.)

MATHEMATICAL SCIENCES

- 000-Algebra
- 010-Analysis & Functional Analysis
- 020-Geometry
- 030-Logic
- 040-Number Theory
- 052-Probability
- 055-Math. Statistics (see also 544, 670, 725, 729)
- 060-Topology
- 082-Operations Research (see also 478)
- 085-Applied Mathematics
- 089-Combinatorics and Finite Mathematics
- 091-Physical Mathematics
- 098-Mathematics, General
- 099-Mathematics, Other; specify _____

COMPUTER SCIENCES

- 071-Theory
- 072-Software Systems
- 073-Hardware Systems
- 074-Intelligent Systems
- 079-Computer Sciences, Other; specify _____

PHYSICS & ASTRONOMY

- 101-Astronomy
- 102-Astrophysics
- 110-Atomic & Molecular Physics
- 120-Electromagnetism
- 130-Mechanics
- 132-Acoustics
- 134-Fluids
- 135-Plasma Physics
- 136-Optics
- 138-Thermal Physics
- 140-Elementary Particles
- 150-Nuclear Structure
- 160-Solid State
- 198-Physics, General
- 199-Physics, Other; specify _____

CHEMISTRY

- 200-Analytical
- 210-Inorganic
- 215-Synthetic Inorganic & Organometallic
- 220-Organic
- 225-Synthetic Organic & Natural Products
- 230-Nuclear
- 240-Physical
- 245-Quantum
- 250-Theoretical
- 255-Structural
- 260-Agricultural & Food
- 265-Thermodynamics & Material Properties
- 270-Pharmaceutical
- 275-Polymers
- 280-Biochemistry (see also 540)
- 285-Chemical Dynamics
- 298-Chemistry, General
- 299-Chemistry, Other; specify _____

EARTH, ENVIRONMENTAL, AND MARINE SCIENCES

- 301-Mineralogy, Petrology
- 305-Geochemistry
- 310-Stratigraphy, Sedimentation
- 320-Paleontology
- 330-Structural Geology
- 341-Geophysics (Solid Earth)
- 350-Geomorph. & Glacial Geology
- 391-Applied Geol., Geol. Engr. & Econ. Geol.
- 395-Fuel Tech. & Petrol. Engr. (see also 479)
- 360-Hydrology & Water Resources
- 398-Earth Sciences, General
- 399-Earth Sciences, Other; specify _____
- 370-Oceanography
- 397-Marine Sciences, Other; specify _____
- 381-Atmospheric Physics & Chemistry
- 382-Atmospheric Dynamics
- 383-Atmospheric Sciences, Other; specify _____
- 388-Environmental Sciences, General (see also 480,528)
- 389-Environmental Sciences, Other; specify _____

ENGINEERING

- 400-Aeronautical & Astronautical
- 410-Agricultural
- 415-Biomedical
- 420-Civil
- 430-Chemical
- 435-Ceramic
- 440-Electrical
- 445-Electronics
- 450-Industrial & Manufacturing
- 455-Nuclear
- 460-Engineering Mechanics
- 465-Engineering Physics
- 470-Mechanical
- 475-Metallurgy & Phys. Met. Engr.
- 476-Systems Design & Systems Science (see also 072, 073, 074)
- 478-Operations Research (see also 082)
- 479-Fuel Technology & Petrol. Engr. (see also 395)
- 480-Sanitary & Environmental (see also 388, 528)
- 486-Mining
- 497-Materials Science Engr.
- 498-Engineering, General
- 499-Engineering, Other; specify _____

AGRICULTURAL SCIENCES

- 500-Agronomy
- 501-Agricultural Economics
- 502-Animal Husbandry
- 504-Fish & Wildlife
- 505-Forestry
- 506-Horticulture
- 507-Soils & Soil Science
- 510-Animal Science & Animal Nutrition
- 511-Phytopathology
- 517-Food Science & Technology (see also 573)
- 518-Agriculture, General
- 519-Agriculture, Other; specify _____

12. Continued

MEDICAL SCIENCES

- 520-Medicine & Surgery
- 522-Public Health & Epidemiology
- 523-Veterinary Medicine
- 524-Hospital Administration
- 526-Nursing
- 527-Parasitology
- 528-Environmental Health (see also 388, 480)
- 534-Pathology
- 536-Pharmacology
- 537-Pharmacy
- 538-Medical Sciences, General
- 539-Medical Sciences, Other; specify _____

BIOLOGICAL SCIENCES

- 540-Biochemistry (see also 280)
- 542-Biophysics
- 543-Biomathematics
- 544-Biometrics, Biostatistics (see also 055, 670, 725, 729)
- 545-Anatomy
- 546-Cytology
- 547-Embryology
- 548-Immunology
- 550-Botany
- 560-Ecology
- 562-Hydrobiology
- 564-Microbiology & Bacteriology
- 566-Physiology, Animal
- 567-Physiology, Plant
- 569-Zoology
- 570-Genetics
- 571-Entomology
- 572-Molecular Biology
- 573-Food Science & Technology (see also 517)
- 574-Behavior/Ethology
- 576-Nutrition & Dietetics
- 578-Biological Sciences, General
- 579-Biological Sciences, Other; specify _____

PSYCHOLOGY

- 600-Clinical
- 610-Counseling & Guidance
- 620-Developmental & Gerontological
- 630-Education
- 635-School Psychology
- 641-Experimental
- 642-Comparative
- 643-Physiological
- 650-Industrial & Personnel
- 660-Personality
- 670-Psychometrics (see also 055, 544, 725, 729)
- 680-Social
- 698-Psychology, General
- 699-Psychology, Other; specify _____

SOCIAL SCIENCES

- 700-Anthropology
- 703-Archeology
- 708-Communications
- 709-Linguistics
- 710-Sociology
- 720-Economics (see also 501)
- 725-Econometrics (see also 055, 544, 670, 729)
- 729-Social Statistics (see also 055, 544, 670, 725)
- 740-Geography
- 745-Area Studies
- 751-Political Science
- 752-Public Administration
- 755-International Relations
- 770-Urban & Regional Planning
- 775-History & Philosophy of Science
- 798-Social Sciences, General
- 799-Social Sciences, Other; specify _____

OTHER FIELDS

- 900-Humanities; specify _____
- 901-Languages & Literature; specify _____
- 902-Education; specify _____
- 903-Professional Field, Other; specify _____
- 999-Other Field; specify _____

GO ON TO PAGE 4 ⟶

HOW TO COMPLETE THE ACTIVITIES PORTION OF THE QUESTIONNAIRE

The portion for reporting daily activities begins on the next page. There is one page for each day of your reporting period. The right-hand column labeled, "Summary Column for Daily Activity Totals" is to be used to report the total time you spend each day in each activity. The half-hour increment worksheet is provided to assist you in the accuracy of reporting. Its use is encouraged, but it is your option. We need only the total time you spend each day in each activity.

For each day, please report the time spent in each activity to the nearest quarter hour unit in the Summary Column (e.g., 1 3/4 hrs.). If no time was spent in a particular activity please enter a zero. Please report zeros for any day in which none of the activities are performed. When bad weather, equipment outage, illness, or similar factor prevents or curtails activities in excess of three hours a day, you may make a note of it at the bottom of the diary page for that day. If your seven day survey period occurs wholly or partially within a school holiday period, e.g., spring vacation or semester break, please so indicate but still report your activities for each of the seven days.

You are invited to use the last pages of the questionnaire for any general comments you may have concerning this study.

Immediately upon completion of the survey period, please place the completed questionnaire in the preaddressed stamped envelope and place it in the mail. Thank you for your cooperation.

DEFINITION OF ACTIVITIES

INSTRUCTION AND INSTRUCTION-RELATED ACTIVITIES:

A. **ACTUAL CLASSROOM AND LABORATORY CONTACT TIME**

B. **OTHER INSTRUCTION AND INSTRUCTION-RELATED ACTIVITIES:** includes time spent in supervision of teaching assistants; office contact with students directly related to courses taught; course organization; advising; directing thesis and dissertation activities; curriculum development; correspondence regarding students; internship programs; student organizations; and other instruction and instruction-related activities not elsewhere classified.

RESEARCH AND RESEARCH-RELATED ACTIVITIES: includes time spent writing research proposals; grant or contract administration; supervision of research assistants, graduate research assistants, and supervision of thesis and dissertation research; the writing of reports as well as the actual research (includes any work on a grant or contract even if you are not currently being paid from the grant or contract); and research performed in conjunction with a research appointment.

C. **SPONSORED FEDERAL RESEARCH** (i.e., separately budgeted research)

D. **SPONSORED NONFEDERAL RESEARCH** (i.e., separately budgeted research including institutionally funded research)

E. **NONSPONSORED RESEARCH** (i.e., specific research projects not separately budgeted)

PUBLIC SERVICE, ADMINISTRATION, AND PROFESSIONAL ACTIVITIES:

F. **PUBLIC SERVICE:** includes time spent on professional public service activities producing *no* income beyond expenses, e.g. unremunerated services on advisory committees, selection or review panels, etc.; if remunerated, record under CONSULTING (I).

G. **ADMINISTRATION:** includes time spent on department or institutional administration; committees; and other miscellaneous institutional activities.

H. **PROFESSIONAL:** includes time spent working as an officer or member of professional and disciplinary organizations; acting as a referee for a journal; and other miscellaneous professional activities.

OUTSIDE INCOME-PRODUCING ACTIVITIES:

I. **CONSULTING:** includes time spent in consultation with individuals and organizations such as those in business, industry, or government, for which you receive a professional fee or honorarium.

J. **AUTHORING PUBLICATIONS:** includes only time spent on books, articles, laboratory manuals, etc., that produce, or are expected to produce, outside income.

K. **OTHER OUTSIDE INCOME-PRODUCING ACTIVITIES:** includes time spent on professionally related activities (e.g., speaking engagements) for which compensation other than expenses is received.

PROFESSIONAL DEVELOPMENT:

L. **PERSONAL CONTINUING EDUCATION AND PROFESSIONAL ENRICHMENT:** includes time spent on activities such as professional reading beyond that specifically needed for research or instruction, attending special courses, workshops or seminars.

RECORD FOR WEDNESDAY, _____ (Date)

| ACTIVITY | WORKSHEET (OPTIONAL) | | |

RECORD FOR THURSDAY, _____ (Date)

ACTIVITY	WORKSHEET (OPTIONAL) a.m. / p.m. / a.m. — 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30	SUMMARY COLUMN FOR DAILY ACTIVITY TOTALS
A. Actual classroom and laboratory contact time		(A)
B. Other instruction and instruction-related activities		(B)
C. Sponsored federal research		(C)
D. Sponsored nonfederal research		(D)
E. Nonsponsored research		(E)
F. Public service		(F)
G. Administration		(G)
H. Professional		(H)
I. Consulting		(I)
J. Authoring publications		(J)
K. Other outside income producing activities		(K)
L. Personal continuing education and professional enrichment		(L)

COMMENTS:

RECORD FOR FRIDAY, _____ **(Date)**

ACTIVITY	WORKSHEET (OPTIONAL)	SUMMARY COLUMN FOR DAILY ACTIVITY TOTALS
	a.m. 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 — p.m. 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 — a.m. 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30	
A. Actual classroom and laboratory contact time		(A)
B. Other instruction and instruction-related activities		(B)
C. Sponsored federal research		(C)
D. Sponsored nonfederal research		(D)
E. Nonsponsored research		(E)
F. Public service		(F)
G. Administration		(G)
H. Professional		(H)
I. Consulting		(I)
J. Authoring publications		(J)
K. Other outside income producing activities		(K)
L. Personal continuing education and professional enrichment		(L)

COMMENTS:

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RECORD FOR SATURDAY, _____ (Date)

ACTIVITY	WORKSHEET (OPTIONAL)	SUMMARY COLUMN FOR DAILY ACTIVITY TOTALS
	a.m. 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 — p.m. 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 — a.m. 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30	
A. Actual classroom and laboratory contact time		(A)
B. Other instruction and instruction-related activities		(B)
C. Sponsored federal research		(C)
D. Sponsored nonfederal research		(D)
E. Nonsponsored research		(E)
F. Public service		(F)
G. Administration		(G)
H. Professional		(H)
I. Consulting		(I)
J. Authoring publications		(J)
K. Other outside income producing activities		(K)
L. Personal continuing education and professional enrichment		(L)

COMMENTS:

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8-J

RECORD FOR SUNDAY, _____ **(Date)**

ACTIVITY	WORKSHEET (OPTIONAL)	SUMMARY COLUMN FOR DAILY ACTIVITY TOTALS
	a.m. 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 12:30 p.m. 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 a.m. 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30	
A. Actual classroom and laboratory contact time		(A)
B. Other instruction and instruction-related activities		(B)
C. Sponsored federal research		(C)
D. Sponsored nonfederal research		(D)
E. Nonsponsored research		(E)
F. Public service		(F)
G. Administration		(G)
H. Professional		(H)
I. Consulting		(I)
J. Authoring publications		(J)
K. Other outside income producing activities		(K)
L. Personal continuing education and professional enrichment		(L)

COMMENTS:

RECORD FOR MONDAY, _____ (Date)

ACTIVITY	WORKSHEET (OPTIONAL)	SUMMARY COLUMN FOR DAILY ACTIVITY TOTALS
A. Actual classroom and laboratory contact time		(A)
B. Other instruction and instruction-related activities		(B)
C. Sponsored federal research		(C)
D. Sponsored nonfederal research		(D)
E. Nonsponsored research		(E)
F. Public service		(F)
G. Administration		(G)
H. Professional		(H)
I. Consulting		(I)
J. Authoring publications		(J)
K. Other outside income producing activities		(K)
L. Personal continuing education and professional enrichment		(L)

a.m. 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00
p.m. 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00
a.m. 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30

COMMENTS:

RECORD FOR TUESDAY, _____ **(Date)**

ACTIVITY	WORKSHEET (OPTIONAL)	SUMMARY COLUMN FOR DAILY ACTIVITY TOTALS
	a.m. 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 12:30 p.m. 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 a.m. 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30	
A. Actual classroom and laboratory contact time		(A)
B. Other instruction and instruction-related activities		(B)
C. Sponsored federal research		(C)
D. Sponsored nonfederal research		(D)
E. Nonsponsored research		(E)
F. Public service		(F)
G. Administration		(G)
H. Professional		(H)
I. Consulting		(I)
J. Authoring publications		(J)
K. Other outside income producing activities		(K)
L. Personal continuing education and professional enrichment		(L)

COMMENTS:

other science resources publications

	NSF No.	Price
Science Resources Studies Highlights		
R&D Funds		
"National R&D Spending Expected to Approach $89 Billion in 1982"	81-314	-----
"March Budget Revisions Raised Defense R&D Support in 1982—Cut All Other Areas"	81-321	-----
S/E Personnel		
"Trends in Science and Engineering Degrees, 1950 through 1980"	81-320	-----
"Number of Recent Doctorates Fell to One-Fifth of Science and Engineering Faculty in 1980	81-318	-----
"Employment Opportunities for Ph. D. Scientists and Engineers Shift From Academia to Industry	81-312	-----
"Tenure Practices in Universities and 4-Year Colleges Affect Faculty Turnover"	81-300	-----
Detailed Statistical Tables		
R&D Funds		
Research and Development in Industry, 1979. Funds, 1979; Scientists and Engineers, January 1980	81-324	-----
Academic Science: R&D Funds, Fiscal Year 1979	81-301	-----
Federal Funds for Research and Development, Fiscal Years 1979, 1980, and 1981, Volume XXIX	80-318	-----
S/E Personnel		
Federal Scientific and Technical Personnel, 1976, 1977, and 1978	81-309	-----
Scientists and Engineers From Abroad, 1976-78	80-324	-----
Academic Science: Graduate Enrollment and Support, Fall 1979	80-321	-----
Employment of Scientists, Engineers, and Technicians in Manufacturing Industries, 1977	80-305	-----
U.S. Scientists and Engineers, 1978	80-304	-----
Characteristics of Experienced Scientists and Engineers in the United States, 1978	79-322	-----
Reports		
R&D Funds		
Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1979	81-308	-----
Federal Funds for Research and Development, Fiscal Years 1979, 1980, and 1981, Volume XXIX	81-306	-----
Problems of Small, High-Technology Firms	81-305	-----
S/E Personnel		
Science and Engineering Degrees—A Source Book: 1950-80	82-307	In press
Young and Senior Science and Engineering Faculty, 1980	81-319	-----
Foreign Participation in U.S. Science and Engineering Higher Education and Labor Markets	81-316	$4.50
Science and Engineering Employment: 1970-80	81-310	$2.75
The Stock of Science and Engineering Master's Degree Holders in the United States	81-302	-----
Employment Attributes of Recent Science and Engineering Graduates	80-325	$1.75
Scientists, Engineers, and Technicians in Private Industry, 1978-80	80-320	$2.00
Occupational Mobility of Scientists and Engineers	80-317	$1.75
Employment Patterns of Academic Scientists and Engineers, 1973-78	80-314	$1.75
Composite		
Academic Science, 1972-81: R&D Funds, Scientists and Engineers, Graduate Enrollment and Support	81-326	-----
National Patterns of Science and Technology Resources, 1981	81-311	$4.75
Science and Engineering Personnel: A National Overview	80-316	$4.25